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OCTOBER, 1954

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American MILK REVIEW

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dairy industries exposition

Atlantic City

October 25-30

"CROSS TOMORROW'S THRESHOLD"

L. N. LUCAS, President
Dairy Industries Supply Association

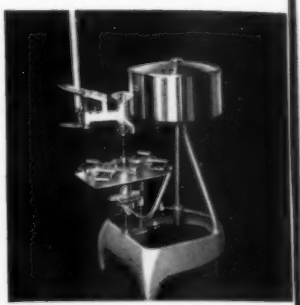
Story on Page 64

To the dairy industry — a relationship of interdependence

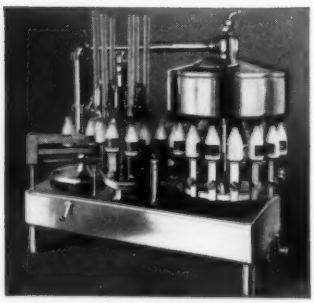
AN URNER - BARRY PUBLICATION

XUM

"Who sez YOU CAN'T DRIVE A SPIKE WITH A TACK HAMMER?"



"Han-D" Filler Fills 6 gallon jugs per minute; 12-14 quarts per minute.



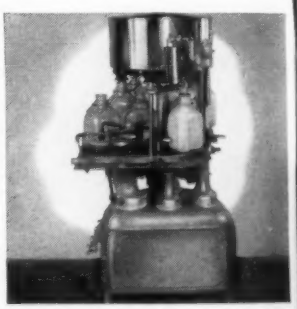
"Milwaukee K" Filler. All-stainless machine fills ½-pint to 2-quart bottles at speeds from 32-145 b.p.m.

Of course you can . . . but why do it the hard way? Why not use a hammer designed to get the job *done* . . . without slowdowns, or extra effort?

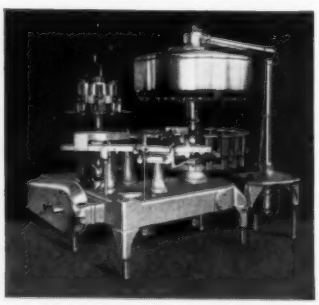
And why slow down a high production line with a filler that lacks capacity (or waste a high-capacity filler on a slow production run) when it's so easy to get a Cherry-Burrell Filler that's *exactly right for your particular operation*?

From this complete Cherry-Burrell line, you can quickly spot the Filler that's geared to your production needs. Everything from a 2-valve, hand-operated Filler to a 24-valve gravity or vacuum machine, handling all bottle sizes and shapes from ½ pints to gallon jugs.

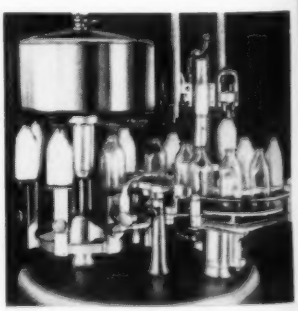
Ask your Cherry-Burrell Representative for full details about the *industry's most complete line* of fillers.



"Milwaukee 61" Filler. Fills 12-15 gallons per minute; ½-pint to 2-quart bottles at speeds from 24 to 30 b.p.m.



"Milwaukee 424" Filler. Fills 30-40 gallons per minute; ½-pint to 2-quart bottles at speeds from 30-130 b.p.m.



"Milwaukee 72" Filler. Handles ½-pint to 2-quart bottles. Capacities: 20-50 b.p.m.

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How To Use This Issue

THIS ISSUE of the *American Milk Review* has been designed to serve as a reference book. We have attempted to concentrate the best available information on topics of present paramount importance to the dairy industry between the two covers. Some of the subjects we present have been discussed in more detail than others. Some of the material has been written by outstanding authorities in specific fields, some has been written by our staff on the basis of authoritative information.

You will find a detailed discussion of truck refrigeration by Mr. W. J. Thompson of the Carnation Company, an analysis of labor developments over the last two years by Paul Potter, an exposition of cleaning in place by Dr. J. C. White of Cornell. You will find such significant matters as advertising, marketing orders, bulk handling, mastitis, vitamin fortification, and fair trade practices summarized and evaluated.

In the back of the book there are a collection of statistics, some of them brand new, all of them important. They deal with such things as consumer attitudes, population trends, buying and selling prices, operation costs, and consumption figures. In addition there is long section that will serve you well as a buying guide.

It was our intention to prepare a magazine that would have more than passing value, a magazine that you will find useful as a reference source for many months. We hope that we have succeeded.

Know a better way to greet your customers every morning?

When your bottles are bright and shining your milk *looks* as good as it tastes. And DIAMOND *Hardnox® Soaker Alkali* keeps bottles sparkling clean, day in and day out. This effective bottle-washing compound gives you top-cleaning efficiency at the *lowest* cost. It can be used in either soaker or hydro-soaker type washers.

DIAMOND also provides you with *economical Clipper Cleaner®*—a versatile detergent that facilitates cleaning and sanitizing your equipment.

These are only a part of the family of DIAMOND engineered cleaners available to you. Your DIAMOND Distributor will be glad to make suggestions in regard to your particular cleaning needs.

Order Diamond Dairy Cleaners from These Distributors

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DAIRY CLEANERS

DIAMOND ALKALI CHEMICALS ®

DIAMOND ALKALI COMPANY

CLEVELAND 14, OHIO

Dairy Exposition Displays to Feature Economy and Efficiency

Nearly 30,000 Industry People Expected to Attend Atlantic City Activities—Show Opens On October 25

A VAST ARRAY of new equipment ranging from a jet age version of a waste receptacle to milk bottles colored to match the kitchen decorative scheme will be on display at the Dairy Industries Exposition in Atlantic City October 25 to October 30. Making their formal bow to the industry will be a new pitcher-pour type half gallon paper container, a hermatic refrigeration system for trucks, a new paper bottle filler, a small 80 gallon farm holding tank, a conversion tool for converting sanitary fittings to a cleaning-in-place operation, a milk case stacker, and an automatic outdoor milk vendor that sells two different sizes of containers at two different prices at the same time. These items are, of course, only a tiny fraction of the breath-taking host of dairy industry supplies and equipment that will fill both floors of the Convention Hall. Indeed, so great is the volume of ideas on display that some will overflow into an adjoining room.

Eager to see what is new and best in order to meet rising costs and tight competition, close to 30,000 industry men are expected to attend the show and conventions. According to the Dairy Industries Supply Association "It now appears that registrants will equal in number the so far record breaking admission totals of the great Chicago Exposition in 1952. Requests for hotel rooms have reached the Housing Bureau on Central Pier, Atlantic City, from throughout the whole United States and Canada and from almost all of the other principal areas of dairy processing activity or of dairy products consumption in the free world."

Although the show itself opens on Monday, October 25 preliminary guns will be fired on Thursday, October 21 when the National Association of Retail Ice Cream Manufacturers and International Association of Milk and Food Sanitarians hold their annual meetings. On Sunday, October 24 an All Industry Buffet Supper will greet early birds to the show and the conventions. An entertainment feature following the supper will be a concert by the famous Oberkirchen Children's Choir of Hanover, Germany. Known as "angels in pigtails" the Choir will sing their popular hit song "The Happy Wanderer."

Monday, October 25 will see the formal opening of the great exposition. At the same time the Collegiate Student's International Contest in Judging Dairy Products will take place. Making Monday a real triple header will be the opening sessions of the Milk Industry Foundation's annual convention at the Chalfonte-Haddon Hall Hotel.

Tuesday evening will be College Night on the Boardwalk. Teams from the nation's Land Grant colleges participating in the judging contest will be dined by industry groups from their respective states. Following their dinners the teams, and anybody else who wishes to go, will adjourn to the grand ballroom at Convention Hall for the Awards Ball. Dancing, music, entertainment and above all the coveted contest awards will be features of the program. This promises to be one of the high spots of the week.

Official hostess of the 19th Dairy Industries Exposition will be Miss Mary Ellen McCabe, Wisconsin's "Alice in Dairyland."

Wednesday will mark the close of the Milk Industry Foundation's convention and the beginning of the International Association of Ice Cream Manufacturer's meeting. The two organizations will team up in a joint session on Wednesday morning. The Evaporated Milk Association and the National Ice Cream Mix Association will meet on Wednesday also. In the evening a high powered program of entertainment featuring such personalities as Herb Shriner, will provide entertainment for conventioneers.

The week of conventions and dairy show follows a somewhat different format this year. Formal evening banquets have been eliminated. Convention hours have been arranged so that there will be more time available for those in attendance to visit the show. A dairy week committee composed of men from the Dairy Industries Supply Association, Milk Industry Foundation, and International Association of Ice Cream Manufacturers have developed and coordinated the program.

Printed on page 130 of this issue of the *American Milk Review* is the advance program of the Milk Industry Foundation. There will probably be some last minute adjustments after we go to press but the essential outline is there. The International Association's program was not available when our presses started to roll.

19TH DAIRY INDUSTRIES EXPOSITION—HOURS

The following hours have been announced for the 19th Dairy Industries Exposition, Atlantic City, October 25-30, 1954:

Mon., Oct. 25—12 noon to 7:00 p.m.
Tues., Oct. 26—9:00 a.m. to 6:00 p.m.
Wed., Oct. 27—12 noon to 6:00 p.m.
Thurs., Oct. 28—9:00 a.m. to 6:00 p.m.
Fri., Oct. 29—12 noon to 6:00 p.m.
Sat., Oct. 30—10:00 a.m. to 1:00 p.m.

Introducing . . .

QuiKold

MILK BOTTLES — CARTON MILK — AND DAIRY PRODUCTS DRY ELECTRIC COOLERS

3000 WD MODEL

• The NEW, improved DRY operating electric QUIKOLD coolers are the last word! Clean and modern in design. Engineered for long, carefree service. Large capacities. Many Models. Bottles and cartons set in metal grid, do not contact inside tank. Economical to buy and to operate. Be sure to see these units at the Convention.

SEE THESE NEW UNITS AT THE CONVENTION!

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Upper Level

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P. O. BOX 1047

MANUFACTURERS OF FINE COOLERS FOR THE INDUSTRY FOR MORE THAN 29 YEARS

SHORT TIMERS

Akshun vs. Lees Dispute Erroneously Reported

In the August issue of the American Milk Review we printed a story entitled "Patent Suit Involving Ice-Making Machine Dismissed By Court." The article dealt with the litigation between Gerald M. Lees and the Akshun Manufacturing Company concerning an ice-making machine.

We reported the litigation as concerning patent rights. This apparently is not the case. The issue appears to be a question of ownership of assignments.

Secondly, we reported that the case had been dismissed. This was true to a degree. The case was dismissed by Judge Barnes but the decision was reversed by the Court of Appeals. In the Court of Appeals, we are informed, judgment was entered in favor of Mr. Lees for costs in that court and the case was remanded to the court of Judge Barnes to take further evidence on certain aspects of the case.

However, instead of contesting the case further, according to the attorney for Mr. Lees, the defendants came to Mr. Lees and entered into a a settlement agreement under which the terms of the original contract calling for the payment to Mr. Lees of ten thousand dollars was paid in full. The settlement included mutual releases and Mr. Lees assigned a co-pending application under which he was granted a full royalty-free license.

The facts appear to be then, that the case was dismissed by Judge Barnes whose decision was reversed by the Court of Appeals and then settled out of court by the parties involved.

USDA Program To Boost School Milk Use

Secretary of Agriculture Benson has announced a program, backed with $50,000,000, to increase consumption of milk in the schools during the academic year 1954-1955. The new program was authorized by the Agricultural Act of 1954. Its purpose is to increase the consumption of fluid milk by children in schools of high school grade and under.

School officials are given wide authority to encourage the use of milk along lines best suited to individual needs. A milk consumption base will be established representing normal consumption. Any milk consumed in excess of this base will be paid for out of the $50,000,000. The only conditions are that the milk service be operated on non-profit basis by the school and that only fluid milk meeting state and local standards be served.

Crossing Tomorrow's Threshold Today

THE DAIRY INDUSTRY of today is a different industry from the dairy industry of fifteen years ago. The dairy industry of tomorrow will be different from the dairy industry of today

Think for a moment on the great changes that have taken place in the short space of two decades – short time high temperature pasteurization, homogenization, paper milk containers, federal and state marketing orders, labor contracts, advertising and merchandising developments, motor driven delivery fleets, mergers, consolidations, and growth.

Each one of these developments of recent years has exercised a profound influence on the dairy industry as we know it in this year of 1954. Current developments such as the bulk method of handling milk, cleaning in place, and expanded research into marketing techniques will have a profound effect upon the dairy industry ten years from now.

Professor R. P. March of Cornell University told New York milk distributors last month that within the next five years it is estimated that over one-half of the milk produced in the nation's second dairy state will be cooled in bulk tanks on the farm.

Dr. James C. White, writing in this issue of the *American Milk Review*, says that completely automatic washing of pipelines is a completely feasible and imminent operation.

There are many other new developments that are either taking place right now or are looming as definite possibilities for the near future.

Against such a history of change and the influence of change it behooves us to examine the new equipment, the new techniques, the new methods that will be on display at the Dairy Industies Exposition in the light of the new industry that they foretell. We are, in the dairy industry, inclined to be parochial in our thinking. We see our own industry and our local version of the industry far more clearly than we see the dairy industry as a whole. At Atlantic City the Dairy Industry will be on display. The equipment, the supplies, the ideas, while they may apply to specific processes and specific details, will, collectively, add up to a dairy industry.

By all means let us go to the show seeking practical solutions to practical problems. But let us not, however, lose sight of the great over-riding significance of the Exposition. For there you will indeed, cross tomorrow's threshold, today.

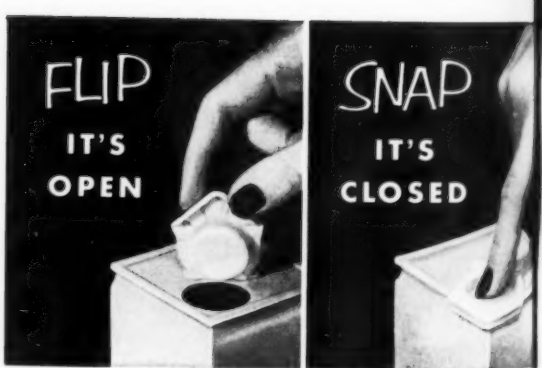
NEW "HOME-USE" SURVEY PROVES

2 out of 3 housewives prefer Canco Snap Cap milk cartons

DISA

Conventioneers!

Come see our big new program to help you sell more in '55. Booth B11 October 25-30, Atlantic City, N. J.



More than twice the families preferred Canco Snap Cap over the other type of carton tested in August, 1954, New Orleans survey

HERE ARE THE RESULTS!

	Total housewives	Housewives using glass containers regularly	Housewives using paper cartons regularly
Prefer Canco Snap Cap	**68%**	**28%**	**40%**
Prefer paper carton "X"	**32%**	**12%**	**20%**

This recent New Orleans survey was a carefully conducted, home-use comparison test. All of the families in the survey were provided with a four-day supply of milk. One half of this supply was delivered in Canco Snap Cap quart cartons, the other half in another type paper carton.

Every family had ample opportunity to compare such features as ease of opening and closing . . . ease of pouring and storing. Also, since a representative number of these families had children, they could see for themselves the advantages of each carton in the hands of their youngsters.

Snap Cap came out far ahead not only among families who previously used glass regularly but among those who used paper containers regularly before the test.

Here's proof again that the Canco container is a positive selling asset for your brand.

AMERICAN CAN COMPANY

The easy-to-open carton *women really prefer* CANCO

Loaded with trophies of their mighty sweep of the 1953 contest, the victorious Ohio State team posed with Coach Slatter for this picture. Picked by the American Milk Review to repeat in 1954 Ohio will face rough competition from Cornell, Iowa, Connecticut and about 20 other teams

Ohio Favored In Student Judging

By NORMAN MYRICK

Exclusive feature

Somebody is going to win the 33rd Collegiate Students' International Contest in Judging Dairy Products. Of that we are quite certain. Not so certain are we on the subject of who is going to win. However, being strong of character and stout of heart, we take our annual safari into the never-never land of picking the winners in advance.

This year three regional contests will precede the national contest in Atlantic City. Unfortunately, two of the three contests are held too late for us to use the results as a basis for prediction. The New England contest, held at the Eastern States Exposition, furnishes the only guide to October 25.

But enough of this hedging. Leave us pick the winners.

Ohio's dramatic sweep of just about everything last year weighs very heavily with us. On the other hand both Iowa and Connecticut have been knocking at the door for longer than somewhat and it could very well be that this will be a tall corn or a nutmeg year. We can't forget, either, the persistent climb that Maryland has been making. Each year the Terrapins climb a little higher in the standings, and it could be that 1954 will see them walk off with a sizable share of the marbles.

Reports just in from New England give Cornell a big boost in the "favored" column. Cornell dominated the field in the six-state judging contest held in the latter part of September at the Eastern States Exposition. Taking the first three All Products places for individual performances, the club was a shoo-in for team honors. Connecticut was second in All Products as a team. Individually, the Storrs contingent took fourth and fifth. Ontario tied with New Hampshire for third place, while Massachusetts was fifth and West Virginia sixth.

This Is How We Pick Them

ALL PRODUCTS

1. OHIO
2. CORNELL
3. IOWA
4. CONNECTICUT
5. MARYLAND

This Is How They Finished Last Year

1. OHIO
2. CONNECTICUT
3. IOWA
4. CORNELL
5. MARYLAND

Coaches here and there, with whom we have talked, express a cautious optimism which is in rather sharp contrast with the dubious pessimism many of them have shown in previous years. It may be that this will be known as the Year of the Upsets with lots of high caliber competition.

We have, however, burned our fingers now and again in the long shot business. Methinks we will stick to the form chart. This is how we pick the All Products winners.

We will go along with our friend Miles Ezell of Purity Dairies in Nashville and take Ohio to win. Year in and year out Coach Slatter's team has been consistently up front and has won eleven times.

By virtue of its convincing performance at Eastern States, we like the looks of Cornell for second place. There is no denying the fact that the Connecticut boys will be out to upset the dope and they have two fine veteran coaches in Professor Dowd and Professor Anderson. However, Frank Shipe has brought the Cornell boys along before and we think he will do it again.

Third place, we think, will go to Iowa. This is a rough one to pick. Coach Rosenberger has a likely look-

(Please Turn to Page 169)

Now you can Save Money, do a Better Job of Maintenance Painting with this *Free* Milk Plant Painting Survey!

Recommended
Maintenance Painting
Systems
for
Milk Plants
BASED ON A DETAILED STUDY OF MILK PLANT PAINTING PROBLEMS, PRACTICES AND EXPERIENCE
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MILK PLANT MEN AND INDUSTRIAL PAINT EXPERTS POOLED THEIR EXPERIENCE TO BRING YOU THIS REPORT

Leading milk plants worked with us to provide exact painting systems best for every surface and machine in your plant. Shows, for example, what to use to defeat moisture, mold, mildew; how to stop moisture travel between rooms of different temperatures; how a "touch-up" plan for acid and caustic wear spots pays off in big yearly savings in paint *and labor.*

Lists 14 specific painting systems for each condition and type of surface in your plant. Take advantage of the experience condensed in this survey, and that of our 3400 milk plant Tropical paint users. It will mean better, longer-lasting maintenance painting at big savings to you. The report is FREE—ask for it on your business letterhead today!

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PERMANENT PIPELINES - - TODAY AND TOMORROW

By J. C. WHITE
Department of Dairy Industry
Cornell University

Exclusive feature

The partly filled bottles containing the last milk in the filler bowl have been removed and the cases have all gone to the cold room. The man at the filler makes a few pipe connections, throws a valve or two, punches a button and knows that all his pipelines will be washed and sterilized with no further effort on his part.

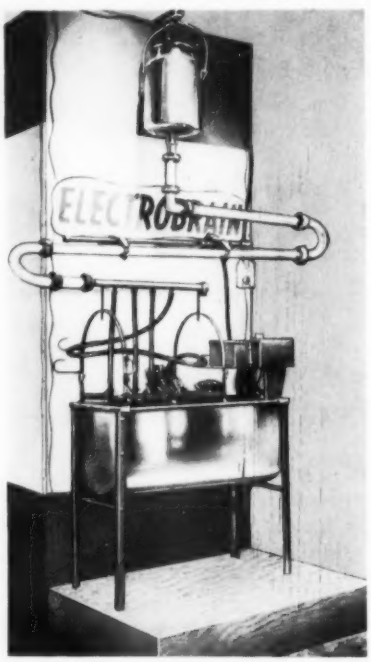
Pipeline pipedream you say?

The equipment is already here. It hasn't been applied to milk plant operation yet so far as we know, but completely automatic washing of farm pipelines has been demonstrated across our country this year. This electronically controlled system pumps rinse water through the system and discards it; detergent solution at proper strength is circulated for a prescribed time and is rinsed from the equipment automatically; hot water or chemicals are used to sanitize.

Is this a practical system? Can the small plant afford the necessary controls? Will it be reliable? We don't know. But essentially the same operations are performed by an automatic washing machine reliably, practically, and economically. This looks like a logical step in the evolution of practical dairy plants.

But no pipeline washer can be used without pipelines properly designed and installed. The basic need for complete acceptance of permanent pipelines continues to be proper design of equipment. All authorities agree that the line should be constructed completely of non-toxic, noncorrosive, non-absorbing materials. While heat-resistant glass and stainless steel meet these requirements easily, it is difficult to provide joints with or without gadgets which are both leak proof and not subject to contamination after prolonged use.

Teflon, neoprene, hy-car and other materials have been used for gaskets at the joints. They must be installed so that they form a level, continuous surface between the pipe ends without forming either a dam or a depression, leaving substantially no crevice. Some gaskets, under prolonged use,



Although not yet applied to plant work, completely automatic washing of farm pipelines is already practiced. This is a demonstration model of an automatic pipeline and milking machine washer.

have deteriorated, either from cracking and checking or from the action of butterfat and chemicals used in the cleaning process.

No gasket is completely satisfactory. The ideal joint is one of metal-to-metal, or glass-to-glass, without the use of gaskets. In this respect welded lines seem highly desirable. Here, if properly fabricated, the joint is absolutely flush and of the same material as the pipe members.

There are metal-to-metal joints available but these are ground so that an individual male fitting will make a tight seal with only its matched female fitting. Interchangeability of these joints is desirable but not absolutely necessary since the lines need to be taken down at such rare intervals, if ever. We have not seen any practical glass-to-glass joints.

Heat-resistant glass is the preferred material for pipelines in the author's opinion. We realize that glass will shatter if struck and we recognize the relatively greater cost of fittings, especially where glass must be connected to equipment. Glass also has a greater need for firm support. Nevertheless, glass is better because of the inherent nature of a cast surface as compared with a machined surface. Under a microscope glass pipe, even after extended use, shows a relatively smooth surface with no great crevices to harbor films and bacteria. New machined stainless steel has a surface that shows the marks of the cutting or polishing tool. These crevices, often sharp in angle, would be expected to hold films and to harbor bacteria even under good cleaning conditions. In our experience glass seems to be easier to clean than steel.

Glass has the further advantage that when reasonable care is taken of the exterior you can see any films which might collect on the milk contact surfaces.

There is always the danger that an operator may forget some vital step in cleaning in place. If the first rinse is forgotten, cleaning is almost impossible; if the cleaning solution is forced through the lines but the oper-

Nothing beats

farm refrigeration experience!*

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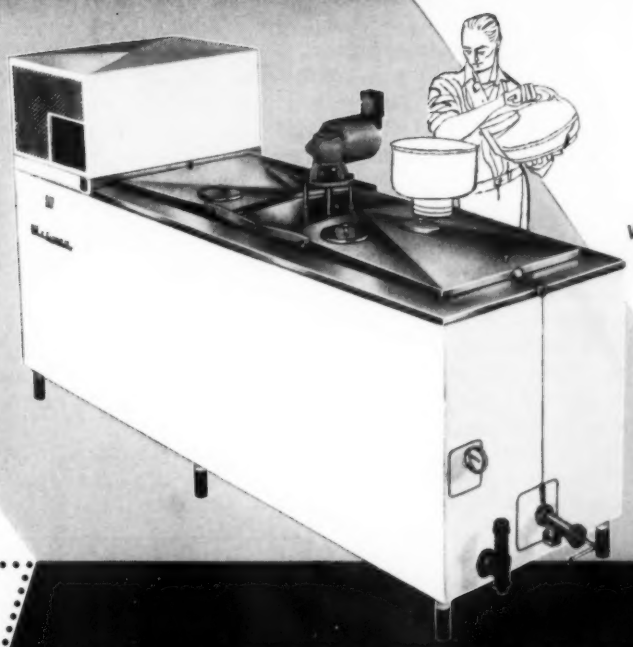
That's why WILSON BULK MILK COOLERS

provide fast, dependable, low cost cooling on the farm, month after month, year after year! Exclusive features save you money, prevent losses, help you maintain sanitation.



Wilson Bulk Milk Coolers are available in five sizes; 75, 150, 250, 360 and 500 gallon capacities.

Ask the WILSON man for full particulars or write:

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Smyrna, Delaware

Rush information on ☐ Wilson Bulk Milk Coolers ☐ Wilson Can Coolers ☐ Wilson Freezers.

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WILSON REFRIGERATION, Inc.

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SMYRNA, DELAWARE

*Wilson has made over 100,000 farm refrigeration installations!

Permanent pipelines should be out of the way yet accessible for takedown if necessary. There is a difference of opinion on whether or not lines should slope. Some health people ask for ⅛ inch per foot. There are good installations, however, that are completely level.

One of the problems of cleaning in place is the matter of joints. It is difficult to provide joints that are both leak proof and not subject to contamination after prolonged use. Glass line shown here is from the receiving room.

ator has forgotten the detergent, little cleaning will be done; if equipment fails to provide proper velocity of solution, the line may be left dirty. If these, or countless other accidents occur, rare though they may be, the glass pipe may be visibly dirty, and presumably the condition will be noted and corrected. With stainless lines the operator may be blissfully ignorant of an insanitary condition.

Stainless lines must be constructed with ports at each bend so that all lines may be inspected by looking through the line. This method of inspection is poor because you can only examine the first few inches of any pipe in this manner. The most practical method of physically inspecting these lines is to pass a filter cloth or some such material through the pipes so that the surface may be wiped and the cloth inspected. It is surprising how often such a cloth reveals undesirable conditions in what appears, visually, to be a clean line.

The first all-welded lines were assembled using crosses at each bend so that inspection was possible. The present tendency is to weld the straight runs of pipe and use removable elbows at the corners. This method requires more supports for the line but it eliminates dead ends in the line and makes cleaning easier. With the development of new fittings by several of the dairy supply companies, demountable stainless steel lines are becoming more popular. These fittings are quite satisfactory when properly installed and are designed for use with self-aligning gaskets. They can be assembled in the plant with relatively few tools, and piping systems can be changed readily should the processing demand it. This is hardly possible with welded lines.

Equipment is available to convert standard pipe fittings to types which will take special gaskets for cleaning in place. While these can be very satisfactory, we have seen pipe fittings completely ruined by a so-called "conversion."

In addition to proper design, equipment must be properly assembled. It is essential that lines be installed in such manner that they are out of the way, yet accessible for takedown if that is necessary. Firm support must be provided but provision for expansion and contraction must be made. There is a difference of opinion with regard to slope of lines. Many health departments insist that all pipes be self-draining so that lines are essentially dry when not in use. This is not unreasonable from a sanitarian's viewpoint and yet this continuous slope with a minimum of ⅛ inch per foot may mean that the lines will be extremely low or high at some point in the plant. Some installations are made with lot points distributed through the system so that with a few motions the lines can be drained. Sometimes this type of installation is not permitted.

There are satisfactory installations which are completely level. These may require that a sterile sponge be drawn or blown through the line to remove traces of moisture to prevent adulteration.

Return circulating lines must be installed of either glass or stainless steel. While many farm installations are washed by running solutions back and forth through the lines, this has not been found practical in plant practice. Return lines of iron or copper may lead to electro-chemical corrosion and difficulty in cleaning. Rubber or plastic return lines are very difficult to drain and may be difficult to keep clean.

Cleaned-in-place systems will not produce substantial savings in labor if they are too small. Research has shown that if less than 50 feet of line is to be washed there are no savings in C.I.P. As lines increase in length, great labor savings can be made. However, very short lines can be washed economically if other equip-

Announcing ACE ALKALI in flake form

The same *premium* bottle-washing results!
Still at a *practical* price!
But with these NEW ADDED FEATURES...

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The finest bottle-washing compound you can use!

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Keeps Machines Cleaner—Longer! Where other cleaners build up deposits on bottle-washing machines, *flake* ACE ALKALI minimizes and practically eliminates the formation of scale.

Flake ACE ALKALI contains an efficient water conditioner to prevent the deposition of hardness salts on bottles and machine parts. This, and because *flake* ACE ALKALI drains quicker with less carry-over, eliminates two of the main causes of scale formation. *Flake* ACE ALKALI even reduces scale produced by other cleansers! This anti-scale action means spray jets do not clog and conveyor belts remain clean. With *flake* ACE ALKALI, clean machines *stay* practically *free of scale!*

New flake ACE ALKALI *has these outstanding physical properties...*

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Working solutions can be prepared in *half the time!*

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More concentrated solutions can be prepared than with powdered or granular materials of similar composition.

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Each flake contains the correct proportion of all ingredients. Completely eliminates possibility of segregation of ingredients encountered in mechanical mixtures. Insures uniform solutions and uniform results at all times.

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ment, such as plate assemblies, can be washed in the same circuit. This is being done in many plants, and operators are scheming out ways to wash other equipment in place. Pumps, ice cream freezers, tubular heat exchangers, separators, and clarifiers could conceivably be washed in the same circuit with the pipelines.

Unfortunately, most of our equipment has not been designed for C.I.P. Plate equipment has areas where solution velocities become low, and poor cleaning results. There is a great challenge to designers to produce dairy equipment which is made to be washed by circulation methods.

Cleaning and bactericidal treatment of in-place lines is dependent upon circulating sufficient cleaning solutions through all parts of the system at high velocity. The basic steps in C.I.P. are the same as those in cleaning any piece of dairy equipment by conventional methods.

The equipment is rinsed immediately after each use. Lines must operate either full, or with a pulsating action so that tops of pipes and other likely-to-be-missed areas are rinsed. A line with an upward slope from inlet to outlet would be advantageous in insuring that all of the interiors were rinsed. Usually all process equipment is disconnected from the lines before rinsing and the water, at 105°-120°F., is run to the sewer until it is perfectly clear. Usually 5 minutes is long enough unless the system is exceedingly large.

At this point the recirculating system is connected so that the detergent solution will not be wasted. All valves must be wide open to prevent decrease in velocity of the solutions. A tank with a capacity greater than that of the C.I.P. system is provided and connected with the suction side of the recirculatory pump. At all times the solution level must be above the suction port of the pump. The pump must have adequate capacity to maintain full lines and satisfactory velocity during circulation. An accurate recording thermometer is usually placed in the downstream end of the recirculating system to maintain a record of time and temperature of the circulated solution.

This thermometer is required by most health departments, but its use is not always necessary to obtain clean lines. We realize that sanitarians desire a record of every operation and that such records are desirable, yet the cost of such equipment is high and it is hard to justify the added expense, especially on relatively small systems.

The detergent solutions may be of several types to meet different requirements. The most important factor to consider is the nature of the water supply; harder water requires special cleaners. For general alkaline cleaning of pipelines, many C.I.P. formulations are on the market. Most of these give satisfactory performance when they contain enough softening agent for the water used.

It is important that the cleaner contain a minimum of wetting agent of a type which leaves films on contact surfaces. Excessive wetting agent will also produce copious foam, making solutions difficult to pump and preventing good solution contact.

The addition of chlorine, usually of the acid type such as laundry bleach, to dairy cleaners has been found to aid in the cleaning process. Such mixtures are especially valuable in removing films left by wetting agents. The added chlorine functions as a cleaner, not as a sanitizer. The admixture of chlorine and detergent in no way substitutes for a separate sterilizing procedure.

Good results can be obtained by following the manufacturers' directions when using products designed for C.I.P. Some experimenting may be necessary with your particular water supply to insure good cleaning. Where an alkaline cleaner is used regularly, we recommend that an acid cleaner be used periodically, perhaps once a week or 10 days. This helps prevent buildup of soil and milkstone.

Washing solution should be circulated for at least 15 minutes, preferably longer, and at a temperature between 130° F. and 170° F. It may be necessary in very hard waters to use longer times at temperatures around 110° F.

All auxiliary equipment, such as side lines not in the circuit, must be hand cleaned. Dead ends, valve seats, crosses and tee's must be hand brushed and sanitized. These parts must be clearly marked so that the operator is aware of the points which need special attention.

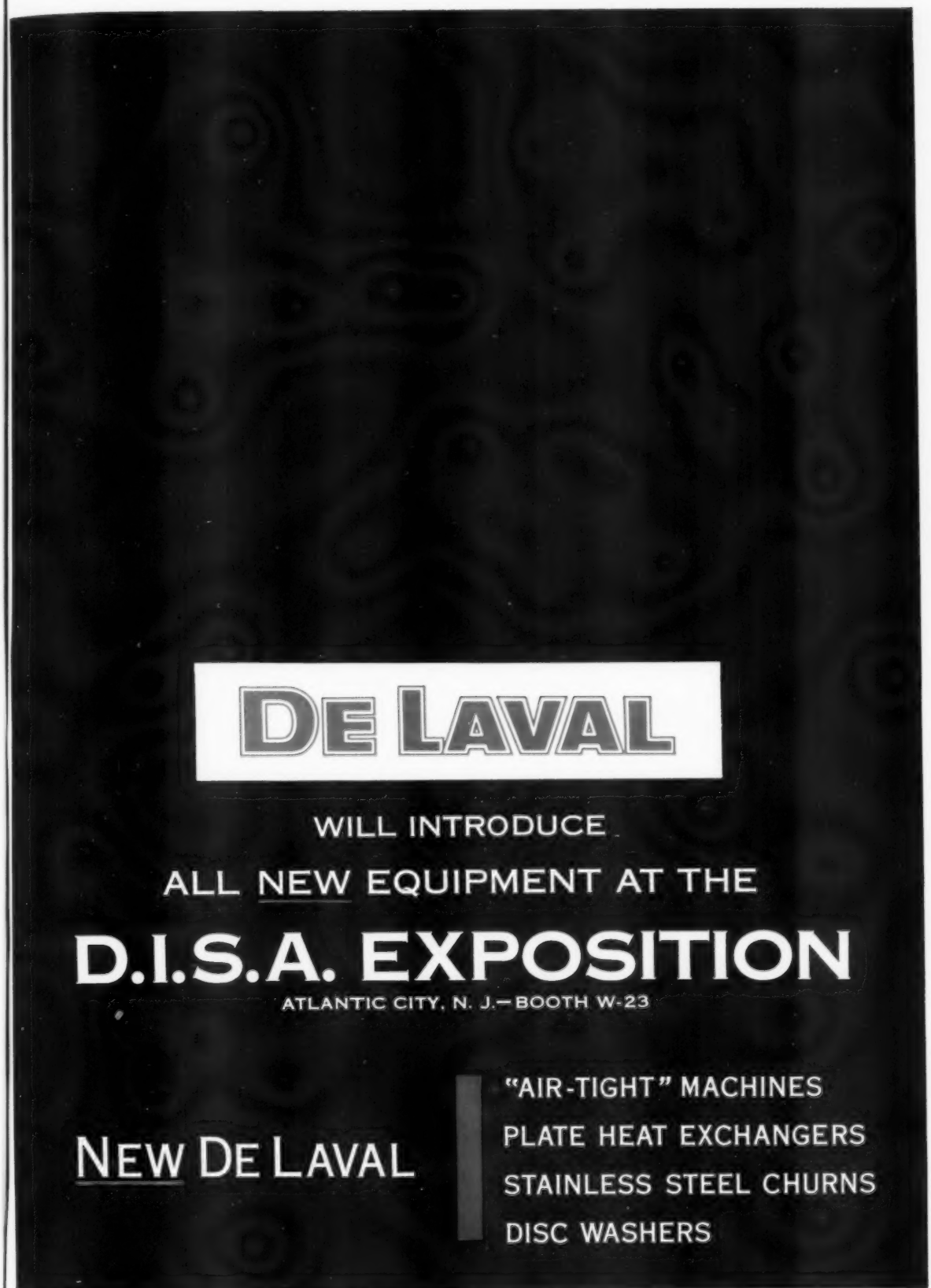
Either immediately after washing or shortly before use, the system is sanitized. Either hot water, which is discharged at 180° F., or a bactericidal solution containing 200 p.p.m. available chlorine or other chemicals is used. Ten minutes of circulation is enough for most systems. We have had discouraging results in trying to use cleaner-sanitizer combinations. We either fail to get adequate sanitizing or develop heavy films on contact surfaces.

Most regulatory agencies require that C.I.P. systems have a velocity of 5 feet per second through the part of the system which has the largest diameter. This velocity has considerable safety factor; most systems can be cleaned adequately at velocities of 2.5 to 3 feet per second, but 5 feet per second is easily obtained in most systems. The velocity can be checked by timing the filling of a 10-gallon can. Pipe of 1½ inch diameter, for example, should deliver 10 gallons in 25 seconds at a velocity of 5 feet per second.

C.I.P. systems draw attention. After installation the regulatory officials concerned with your plant will be present much more often to inspect the lines, and more samples will be taken of your product. The sanitary condition of lines, both physical and bacteriological, can be very good if proper methods and materials are employed. Our experience shows that C.I.P. lines are usually cleaner than comparable takedown lines and the systems should stand any inspection. If C.I.P. systems seem over-inspected, remember that they are relatively new and sanitarians always make close checks on new equipment.

As these systems become more common, we hope that regulatory agencies will judge their acceptance on the basis of end results, physical and bacteriological cleanliness. It is a mistake to look only at the methods of cleannig because this discourages the development of practical and economical innovations which may lead to cleaner equipment. A clean and sterile pipeline is the main concern, regardless of the method by which it is accomplished.

C.I.P. is here to stay. New equipment is in the design stage. New ideas are being tried and adopted. C.I.P. is a logical, economical development in the growth of our great dairy industry.



THE DE LAVAL SEPARATOR COMPANY / Poughkeepsie, N. Y. / 427 Randolph Street, Chicago 6
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The type of refrigeration selected should be tailored to fit the operation in which it is to be used. This 35-foot refrigerated ice cream relay van is equipped with freon condenser units mounted underneath the body about midship.

REFRIGERATED TRUCKS

By W. J. THOMPSON

Transportation Manager, Carnation Co.

WHEN I FIRST went to work for Carnation the only trucks that we refrigerated were ice cream trucks. These trucks used the ammonia system to charge the refrigeration plates or holdover plates, as they are commonly called. The trucks were hooked on the ammonia line, which was fed from a central system. After each day's run and after being on the line all night, the body temperature of the truck was brought down to a desirable degree to keep ice cream in good condition during the time of delivery.

Carnation, like many other companies delivering low temperature products, is still using the ammonia system and using it very successfully. We, of course, use it also in what we call high temperature work or in connection with refrigerated milk trucks. The desired temperature of any truck body naturally is governed by the plate solution, whether it be minus or plus a certain number of degrees Fahrenheit. We use −8° or −12° F. plates in our ice cream bodies and +22° or +26° F. in our milk bodies, depending on the ambient temperature where the trucks are required to work. Eutectic solution used in the plates can be made to give a variety of plate temperatures.

We also operate many refrigerated combination ice cream and milk trucks at various Carnation plants throughout the country. Most of these trucks are equipped with self-contained freon refrigeration units; however, some are on ammonia. The ones on freon are equipped with two compressor units. One unit is for low temperature work and is used in connection with low temperature plates in the ice cream compartment of the combination body; the other is used in connection with the high temperature plates in the milk compartment.

Remote Freon Refrigeration Units

About six or seven years ago we first started using freon units for refrigerating trucks. One of the reasons for changing to freon was because of over-taxed ammonia compressor capacity in the plants during peak loads.

We first used remote freon compressor units with the "make and break" system. This did not prove too satisfactory, as there was always the problem of getting air or moisture in the system when hooking up or unhooking the lines, with the result that some of the plates would not pull down to the desired temperatures. This being the case, we could not get proper body temperature to insure good product temperatures.

Mr. W. J. Thompson, the author of this detailed discussion on refrigerated trucks, is Transportation Manager with the Carnation Company. Long experience with trucks and dairy products in all kinds of weather and under all kinds of conditions makes him emminently qualified to comment on the subject. This article was first presented as a paper at the Washington State College Institute of Dairying in March of this year.

Self-Contained Freon Refrigeration Units

Because of the trouble experienced with remote freon refrigeration units, we next tried air cooled self-contained freon units. When we first started using self-contained units they were quite bulky, as at that time no company was manufacturing a compact self-contained unit for mobile purposes. In some cases we had to use a part of the cargo space for the compressor unit. Today, however, we are able to obtain semi-sealed air cooled compressor units reduced down to a size that will fit in the body skirting beneath the body floor and still not protrude beyond the side of the body. Also, there is plenty of ground clearance. These units have proven quite satisfactory and do a good job of refrigeration.

Size of Freon Compressor Units

The capacity of the freon compressor units we use depends, of course, on the size of the body the compres-

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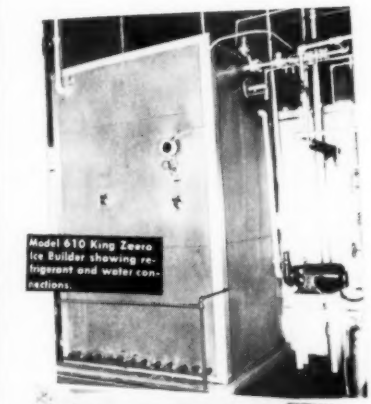
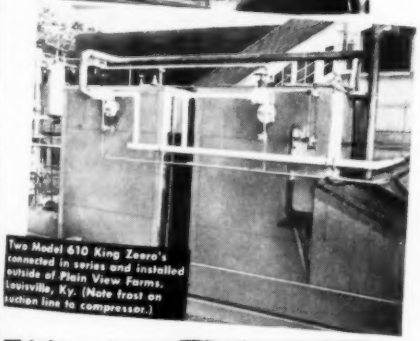
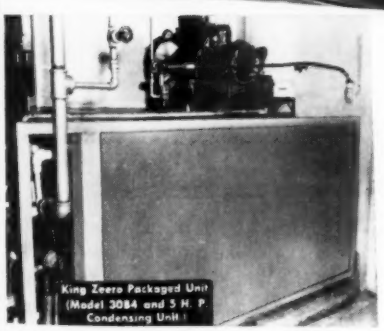


Model 610 King Zeero Ice Builder showing refrigerant and water connections.



Two Model 610 King Zeero's connected in series and installed outside of Plain View Farms, Louisville, Ky. (Note frost on suction line to compressor.)



King Zeero Packaged Unit (Model 3084 and 5 H. P. Condensing Unit)

With the addition of "King Zeero" Plant No. 2 shown above, we are in a position to offer Ice Builders in nearly 200 models and sizes, vertical and cabinet, in capacities ranging from 500 to 36,000 pounds in a single unit.

We'll expect to see you at the Show!

Our 25th Year

THE KING ZEERO COMPANY

4300-14 W. Montrose Ave., Chicago 41, Ill.

Vehicle at left in 12½-foot refrigerated wholesale milk truck. Shown on the right is the 15-foot refrigerated milk truck. Both of these trucks have self contained freon refrigeration units mounted in the skirts of the truck bodies. These units are hooked on to electrical outlets at the end of each day's run—1½ h.p. units for the 12 ft. body, 2 h.p. unit for the other.

sors are required to refrigerate, the number of holdover plates, and so forth. It also depends on the section of the country where the trucks are being used.

Normally in what we term a 1,000 gallon ice cream body we will install two one horsepower units. In a 12½ foot wholesale milk body we usually use a 1½ horsepower units, and in a 15 foot wholesale milk body we normally use a 2 horsepower unit. Again the size of the units and how successfully they will function depends on many things, such as the ambient temperature, cubic capacity of the bodies, amount of insulation, amount of time off the line, number of door openings, and so forth.

In addition to the self-contained freon equipped ice cream trucks, wholesale milk trucks, combination trucks, and large 35 foot relay van trailers, Carnation also operates large numbers of freon refrigerated retail delivery trucks throughout the country. In the retail trucks we use a heavy duty ¾ horsepower semi-sealed unit in connection with two medium sized holdover plates or one large plate. We find that we can maintain body temperatures of from 43° to 47° depending, of course, on the many things I have pointed out previously.

Many Ways of Refrigerating Trucks

As I mentioned before, there are many ways of refrigerating trucks, some of which I have already explained. There are also dry ice systems, gas driven freon blower systems, combination gas and electric freon blower systems, combination power take off and electrically driven compressors operating in connection with quick pull down plates, and so on.

The most recent development that has come to my attention is the General Electric alternator unit for retail trucks. The alternator is driven by a belt from the crankshaft of the motor and generates 90 volts. This voltage is ample to operate a motor which drives the compressor. An evaporator is mounted inside the body, back of which is a fan. This fan also gets its current from the alternator. No current is required from the truck battery except for the small amount used to operate the excitor of the alternator. I am told that this General Electric unit can be used with various makes of compressor units.

Carnation Company has experimented, so to speak, with many types of refrigeration. We have tried the blower system in retail trucks, in which the compressor unit was driven by the fan belt or from a belt in connection with a special pulley on the end of the crankshaft. The condenser was mounted ahead of the radiator and the fan for the evaporator was powered by current from the battery. We also tried a unit just like this in a combination setup. This unit could be plugged in at night to provide refrigeration in case the trucks were loaded in the evening.

This type of refrigeration or retail delivery trucks, like other types, has its advantages and disadvantages. The blower coil system is somewhat lighter than the holdover plate system, but it requires the truck motor to run all or nearly all of the time during delivery and at a fast idle when the truck is not moving.

For some time the Carnation Company has operated on a basis of shutting off the motors in retail, wholesale milk, and ice cream trucks at each stop. It is possible to do this when holdover plates are used for refrigeration and, of course, a great saving in gasoline costs has resulted.

In my opinion, the type of refrigeration selected should be tailored to fit the operation in which it is to be used. In some cases the blower coil system might prove to be the best; in others, the plate system might be best. There are plenty of good makes to choose from on the market today.

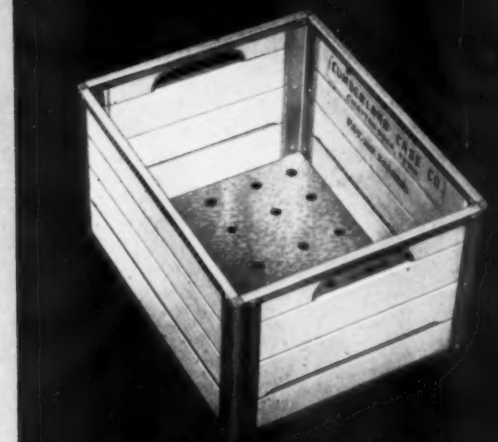
Freon vs. Ammonia

Many of the Carnation trucks are refrigerated with self-contained freon units. The question has arisen many times which is the cheapest way to refrigerate trucks – by self-contained freon units or from a central ammonia system. The actual cost of refrigerating trucks with freon averages from $300 to $500 more than to refrigerate with ammonia. This cost differential is largely because of the freon compressor unit and the cost of the freon gas which, as you know, is very costly. The compressor units vary in price depending on size.

For a short period of time we have been making a study of maintaining freon refrigerated trucks vs. ammonia equipped trucks, but as yet we do not have any cost figures available.

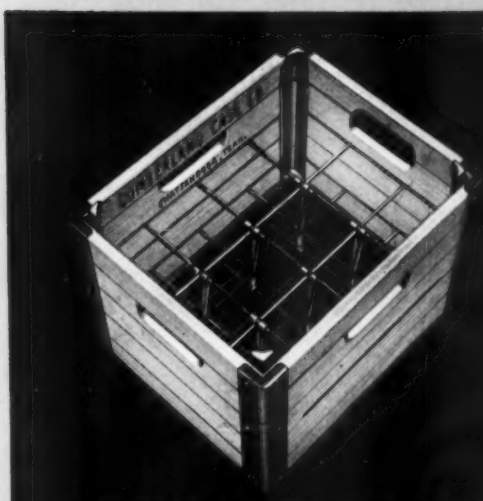
Using self-contained freon refrigeration units means that considerable weight is added to the truck, and this in turn means a little more gas usage, more tire wear, and perhaps in some cases additional license costs, and so forth. Also it means that each individual truck has to be equipped with a freon compressor units, and each of these units requires mechanical attention from time to time. Due to the fact that considerable copper tubing

STOP WOOD ROT!



20-Quart Case for Paper Milk Containers

THE WOOD PARTS IN ANY CUMBERLAND CASE CAN BE PRESSURE TREATED



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If wood parts are not lasting as long as metal parts in your cases, this new, exclusive Cumberland pressure treatment can mean important savings to you. Full information on request.

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YOU GET MORE FOR YOUR MONEY WHEN YOU BUY CUMBERLAND PRODUCTS

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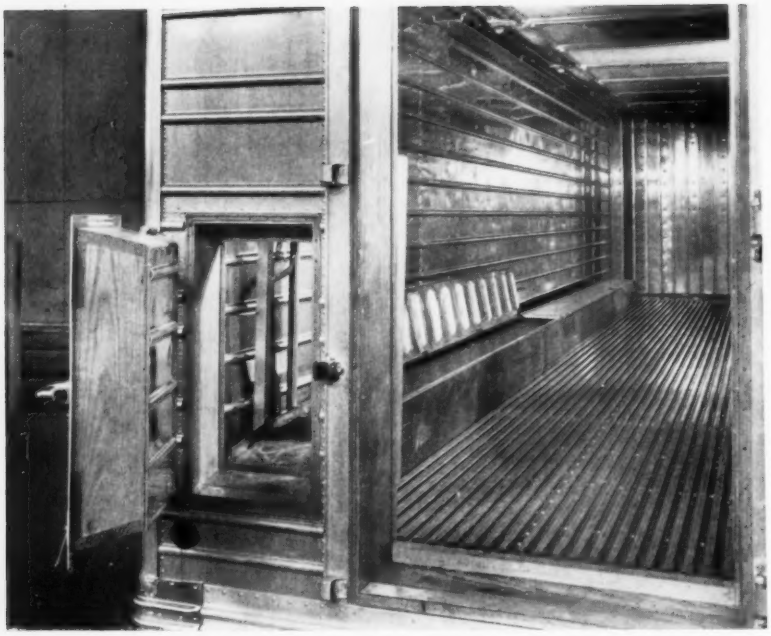
ENGINEERED PRODUCTS



This picture of the interior of the 35-foot ice cream relay van shows the refrigeration plates mounted in the ceiling. Note the belt conveyor system at the left which runs the complete length of the van. This conveyor aids immensely in loading and unloading.

and flex lines are used in hooking up a freon system, there is also always the possibility of a leak in some of these lines, resulting in loss of freon gas. Of course, if there is a leak of freon gas there will be no loss of the cargo as might be the case if an ammonia line were to break.

We have found that one of the greatest advantages in using self-contained freon units in our operation is that it gives us greater flexibility. If we wish to transfer a freon equipped truck from one branch to another where there might not be an ammonia system available, we can always arrange to have electrical outlets to which we can hook the refrigeration system.

Our engineers feel that it is always easier to add additional electrical outlets for freon refrigerated trucks than it is to extend ammonia lines for ammonia equipped trucks. My own personal opinion is that where trucks are stationed permanently at one plant that the ammonia system for refrigeration is much the best. Usually it would not require any additional engineers, because when using the ammonia system compressors are usually located in one room and do not need any additional watching as is the case when each truck is equipped with a separate compressor unit. It seems natural that there would be less maintenance and certainly less loss of refrigerants where trucks are refrigerated from a central system.

Type of Insulation

Some years ago about the only type of insulation used in refrigerated trucks was cork. Perhaps today there is no better insulation than cork board when it is properly installed. But the weight of cork has caused fleet operators to turn to a lighter type of insulation.

There are several types of fibre glass insulation on the market today and also many other types of insulation, including isoflex, rubitex, styrafoam, and so forth. In the refrigerated bodies which we have constructed for the past 7 or 8 years and even longer, we have used fibre glass materials in the sides, ceiling and floors of our so-called "high temperature bodies." In the low temperature bodies such as ice cream bodies and large insulated van trailers we usually use fibre glass in the sides and ceiling and either rubitex or styrafoam in the floors. In some cases we use a combination of these last two items in the floors. Also we may sometimes use 3 inches of styrafoam with one or 2 inches of cork board.

The amount of insulation which we use in any bodies, whether they be retail trucks, wholesale trucks, or ice cream trucks, depends to a great extent on the area in which the truck is to be operated; but in most cases we find that 6 inches of insulation for low temperature jobs and 3 or 4 inches of insulation in high temperature jobs is sufficient. We, of course, use an aluminum foil or water proof paper as a vapor barrier in all body construction next to the outside metal.

In some of our ice cream relay operations where we use large 35 foot trailers, we have gone to 8 inches of insulation in certain sections of the country, especially in the Houston, Texas, area. We find that the territory around Houston is the proving ground for every type of insulation and refrigeration because of the very high humidity in that area. Even with the best of insulation I have seen refrigerated trucks at our Houston plant show signs of sweating on certain days, particularly around the doors.

The color combination for the Carnation trucks is red and white, the white being on the upper half of the body. This is very advantageous, as white is very good for deflecting heat. We even paint the top decks of all of our large aluminum relay vans white in order to maintain better inside temperatures. The rest of the body is left unpainted.

Type of Body

Because of the moisture prevalent in the bodies of trucks used in the dairy industry we are always faced with a rust condition, particularly if we don't use a rust proof material such as galvanile, galvanized, or aluminum in building the bodies. For the past few years we have built many of our refrigerated bodies out of aluminum. We have done this because of other types of metal rusting and also because of the weight factor. We find that a steel 15 foot refrigerated wholesale milk body mounted on a two ton chassis will have a gross unladen weight of slightly over 10,000 pounds. The same type of body built out of aluminum and mounted on a two ton chassis will gross 9,000 pounds unladen. The difference in weight of the two bodies is certainly quite a factor when you consider that the steel body weighs

(Please Turn to Page 158)

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air agitation of milk
cuts tank cleaning time up to 60%
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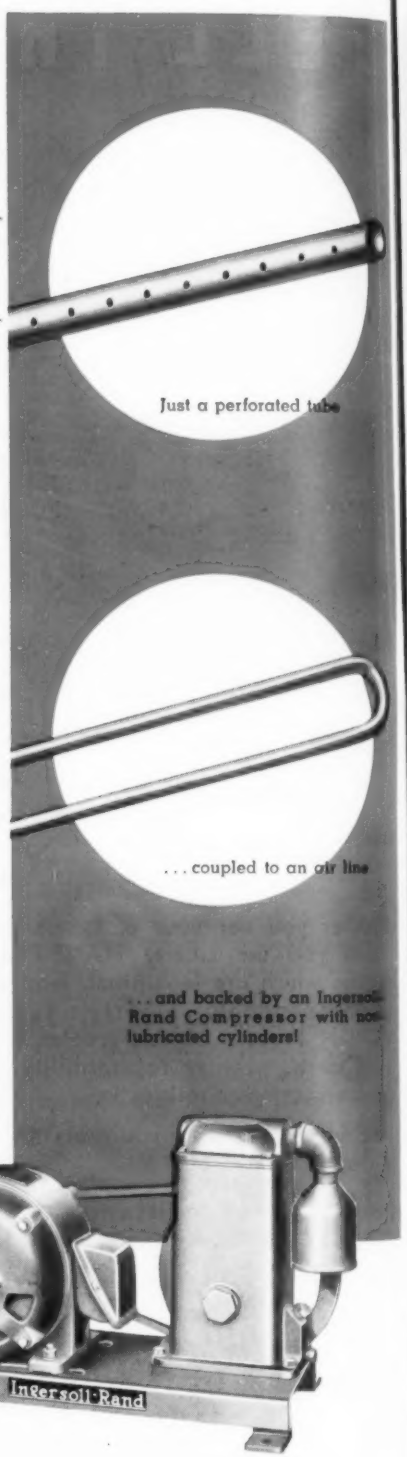
When dairies from coast to coast invest the few dollars required to shift from mechanical agitation of milk — they find they are quickly repaid, many times.

Reports show mixing time slashed as much as 87½% . . . foaming is minimized or eliminated . . . stoppage time in mixing sharply reduced . . . mechanical shaft seal leakage or contamination is eliminated.

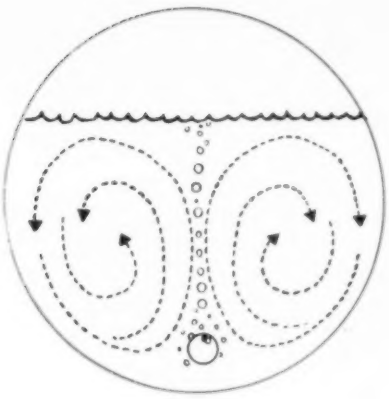
In fact, all the evidence indicates that a perforated stainless tube when connected to an Ingersoll-Rand non-lubricated compressor does more than agitate milk efficiently—it helps dairies cut costs, save time, show more favorable profit ratios. And because an Ingersoll-Rand non-lubricated compressor is built to deliver service for years — these extra benefits are delivered for years at minimum operating and maintenance costs.

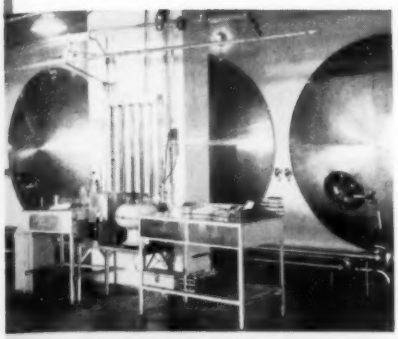

Just a perforated tube
. . . coupled to an air line
. . . and backed by an Ingersoll-Rand Compressor with non-lubricated cylinders!
Ingersoll-Rand

see us at the DISA Show
Booth No. D-5

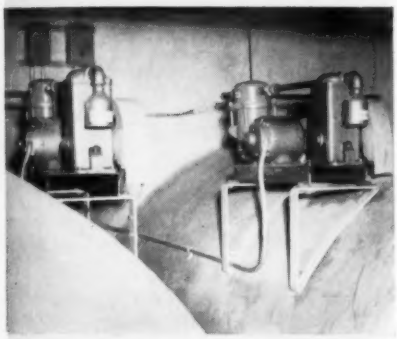
Ad #14-117

here's how it works to give lowest cost milk agitation

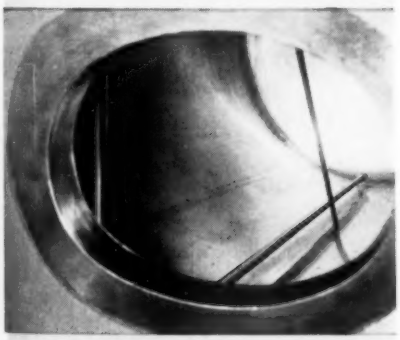




A battery of 5 tanks all equipped for air agitation.



Typical set-up for mounting NL compressors on the milk holding tanks.



Typical piping for an air agitated system. Note legs on capped end of lateral pipe.

Clean compressed air from the non-lubricated compressor is carried through stainless pipes to a vertical line that goes down through the milk tank to a point just a few inches above the tank bottom. There it enters a horizontal stainless tube that runs the length of the tank. This horizontal line is perforated with staggered holes in the underside (just off pipe centerline). As the air leaves these holes it rises through the milk, forming air lifts that efficiently and swiftly set up a pattern of circulation that insures thorough mixing. There is no chance for churning . . . agitation can continue practically to tank bottom . . . taste and vitamin content are unchanged. Find out complete details on this logical way to agitate milk better and at lower costs. Write today, no obligation, of course.

to keep "COOL" on the job...

There's no more efficient way to circulate cooling brine or sweet water than by an efficient, durable I-R Motorpump. Designed from long experience, they are built to the industry's highest quality standards to stay on the job for years. There's extra value built-in to every I-R Motorpump.

MOTOR PUMP

Ingersoll-Rand

11 BROADWAY, NEW YORK 4, N. Y.

I-R COMPRESSORS AND MOTORPUMPS FOR THE DAIRY INDUSTRY

Getting Ready for Winter

AS COLD weather approaches many truck operators find it worth while to make up a special check sheet to be used in connection with the regular preventive maintenance check sheet. The reason for the supplementary sheet is to serve as a reminder that some extra precautions are desirable for operation in winter weather.

Among the first of the items to be checked for cold weather operation is tires. Tires that have sufficient tread left for perfectly satisfactory warm weather operation do not have sufficient anti-skid qualities for snow and ice. In real snow country the reminder serves as a notice to dig the regular snow tires out of the stock room and install them or to have snow recaps put on bald tires.

At the same time the skid chain stock can be checked to make sure there is a set of skid chains available of the right size and in good condition for each truck. Many times chains get put away for the summer with badly worn cross links. These can be repaired before the emergency arises.

In checking the cooling system, it is a good idea to flush it out before installing anti-freeze. Anti-freeze can be installed directly into the cooling system or mixed with water in the mixing container ready for installation in the right proportion when freezing weather is imminent.

Checking the cooling system automatically leads to a check of ignition since the fan belt drives the generator. Most fleets like to start the winter with the battery at a high level of charge.

The rest of the ignition system can be tuned for easy starting to relieve the cold weather load on the battery.

As a part of the tuning process the fuel system can be cleaned and any accumulated water removed to prevent it freezing and stalling the truck. At the same time thermostats can be checked to make sure the engine will run sufficiently hot and in extreme cases winterfronts are installed.

Heaters which are disconnected or removed for the mild weather should be put back in operating condition and windshield wipers and defrosters given a good going over. A lighter grade of engine oil is indicated in the severe climates.

If the fleet has grown beyond its housing and is stored outside some measures may be necessary to insure prompt starting in the morning after a night of standing. One of the most popular ways of doing this is to install immersion heaters in the trucks and the necessary current in the parking lot. The immersion heaters are essentially a resistance coil and flange which is fitted to the internal part of the cooling system. Electric current with a quick disconnect plug available from wires strung in the parking lot supply the energy. This method has been successfully used to a large extent in truck fleets.

While the trucks are on the hoist for a Fall inspection, the undercoating should be checked. Winter is when the undercoating is most valuable. That is when the salt solutions are on the streets and these are generally quite corrosive. The damage may not show up during the winter but that is when it will be done. The damage will show up some time later in corroded panels at the body joints.

All lights are going to come in for heavy duty when the days get short so all light wiring should be inspected and replacements made before the breakdown occurs.

After the trucks have been prepared for operation in cold weather, it may be worthwhile to prepare the drivers for it. This can be done in several ways. One is to hold a meeting and refresh the drivers on the additional driving hazards that come with the season and the consequences of disregarding them. Literature for this purpose may be obtained from the Winter Driving Hazards Committee.

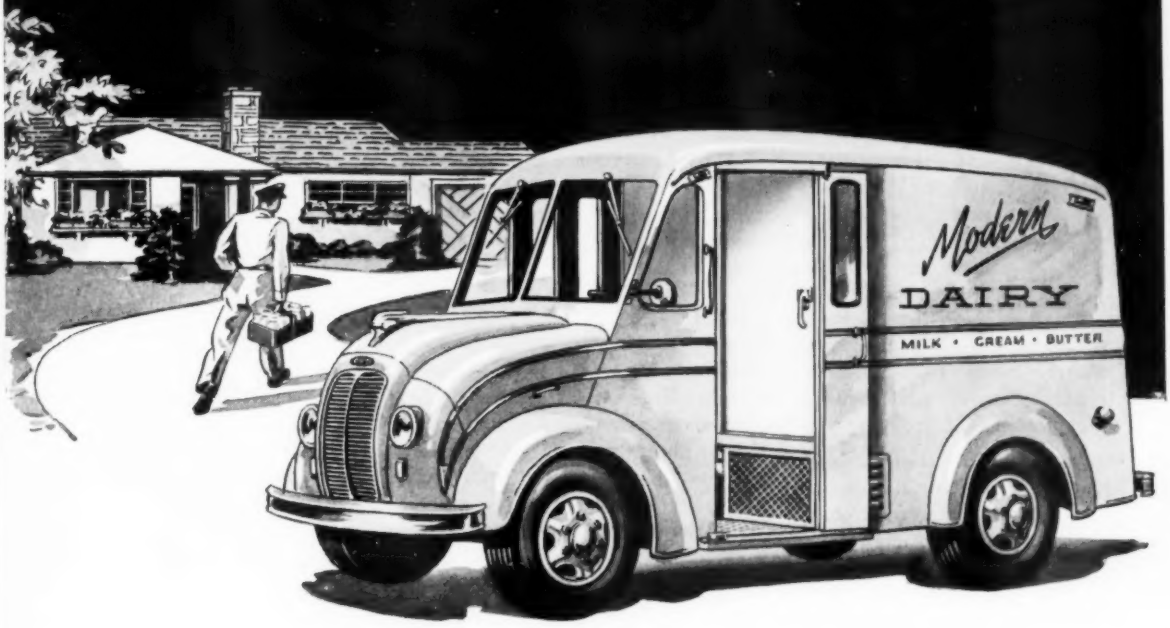
Among dairy products distributors there is going to be a trend towards better cargo temperature control. This is not a problem for this winter at this late date but it is worth thinking about while making preparations for this winter.

DeKALB'S FIFTIETH ANNIVERSARY

DeKalb Commercial Body Corporation is celebrating its fiftieth birthday as a manufacturer of commercial truck bodies. Founded in 1904 as the Sycamore Wagon Works, headed by Frank C. Patten who became the company's first president, the firm has enjoyed a half century of growth and service.

Some of the milestones alone the 50-year highway were the step-up Quick Delivery Cart the forerunner of the drop center wagon. With the rise of motor vehicles DeKalb went to the drop-frame truck with "stand-drive" controls. During both World Wars the firm was engaged in extensive production of military units including such varied items as supply wagons, ration carts, ambulances, and shelters for Signal Corps radio equipment.

DIVCO



DAIRY INDUSTRIES EXPOSITION

Atlantic City—October 25-30

BOOTH W-5

This is an unusual opportunity to personally inspect today's modern DIVCOS—featuring DIVCOMATIC Automatic Transmission—Insulated and Refrigerated Models—Many other features!

DIVCO CORPORATION—MAIL ADDRESS: P. O. BOX 3807, PARK GROVE STATION, DETROIT 5, MICH.

The Dairy Industry Supply Association

"A Relationship of Interdependence"

By NORMAN MYRICK

Exclusive feature AMR

Most of our present dairy enterprises sprang from humble beginnings. An ice cream freezer in a garage, a single milk route, a crossroads cheese factory, a small creamery, these were the antecedents of the large and complex dairy organizations of today.

An increase in size and an increase in technical achievement have been the most obvious features of the great growth that has characterized the dairy industry during the last half century. Less obvious but possibly of even more importance has been a corresponding growth in responsibility, in quality, and in wisdom.

It is difficult, if not impossible to single out any one factor and say this was responsible for the subtle changes that have made an industry out of a heterogenous collection of primitive enterprises. The enlightened understanding of industry's relationship to society that has encompassed all of the business world is undeniably a part of the answer. But it is an unsatisfactory explanation because somewhere, sometime, that generality had to be translated into terms of the dairy business. There has to be a point or points within the industry itself to which one can refer and say at this point positive action was taken which set the course that determined the subsequent development of the dairy industry.

There have been many events and many personalities along the way that serve as bench marks in the development of the dairy industry. Such practical scientists as Dr. Stephen M. Babcock and Dr. Charles E. North certainly exercised wide and important influence on the industry. The business acumen of men like George Abbott and H. P. Hood certainly cannot be underestimated. Yet as one probes into the serried past one cannot but be impressed by the great, yet unobtrusive role, played by the manufacturers of supplies and equipment used by dairy industry.

Physicians confronted with the need for better milk set up their own system of certified milk. Health departments tended to wield the whiplash of their licensing power. But the supply and equipment salesman, whose job it was to find a market for his goods, could not build a market by junking his old customers nor could he force them to improve in order to expand their markets and therefore his. He could persuade. He could point the way. But he could not push. And so he became a teacher.

A few weeks ago I made the rounds with a salesman friend of mine who calls on fluid milk processors. Again and again I was impressed by the problems that my friend was asked to help solve. This man was having trouble with his cottage cheese. That man was having production line difficulties. Another man was burning too much coal and what could he do about it. These were not the questions that one asks of an itinerant peddler. This was not the relationship between a flamboyant drummer and a shrewd buyer. This was the harmonious relationship of a councilor and friend.

Last week I talked with a man who represents a firm that manufactures a line of coagulators. It soon became apparent that this man was not selling coagulators he was selling a better cottage cheese.

Not long ago I wanted to get together some material on dairy bars. Milk and ice cream distributors with whom I talked suggested that I contact a company that makes refrigerated cabinets. It was not because my distributor friends were reticent about giving me information. On the contrary they were most eager to help. They recognized, however, that the cabinet company people, with the rich experience gained through setting up hundreds of dairy bars, were authorities on the subject.

Each year one of the leading manufacturers of dairy cleaners and sanitizers holds a three-day seminar. It is attended by dairy scientists and dairy processors from the four corners of the nation. Basic problems in sanitation are discussed by national and international authorities. It is an expression of the supply and equipment industry's function as a teacher.

These few examples serve to illustrate the influence that the supply and equipment industry has had in

INVESTIGATE A-C* Polyethylene FOR MILK CARTONS!

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. . . you can run it in your present coating equipment

Yes, look into A-C POLYETHYLENE, the low-molecular-weight polymer. Its low viscosity lets you blend with your *present* equipment. And although very small percentages are required, you'll get stronger dairy cartons that are more attractive and easier to process.

Look at these *sales* advantages—

- A-C POLYETHYLENE is an easily worked plastic. It strengthens dairy cartons, reduces flaking, helps reduce leakers, extends shelf life. And by effectively combating lactic acid absorption, it minimizes bulging and loss of sales appeal.
- A-C POLYETHYLENE insures better coverage, too. Your cartons get a more uniform, more homogeneous coating on bottom and sides. They can take rougher treatment than conventional dairy cartons.
- Brighter colors, clearer printing, all around brilliance comes with A-C POLYETHYLENE. It's a sure way to add sales appeal to these staple products.

Note these *production* advantages

- A-C POLYETHYLENE is economical to use, and it's easy to handle in your present waxing equipment. Increased mileage may be expected.
- Production runs are better . . . your containers are easier to process because A-C POLYETHYLENE minimizes the accumulation of wax on the filler section runners. Your machine stays clean—there's less maintenance.

It will pay you to ask your wax supplier about A-C POLYETHYLENE. Send in the handy coupon for additional information.

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THESE ARE SOME OF THE MEN WHO HELPED TO BUILD DISA

John H. Mulholland | H. A. Keiner | T. D. Cutler | Oliver S. Jordan | H. H. Miller | J. L. Nelson

developing and disseminating information. Salesmen from hundreds of firms, constantly in motion, constantly bringing new ideas, new techniques, new methods, to the attention of the dairy industry have supplied a large part of the current necessary to energize the power lines of progress.

The Source of Progress

It is an axiom of history that commerce and progress go hand in hand. The great centers of early civilization sprang up along the river highways; the Nile, the Tigres and Euphrates, the Ganges, the Yangtze. Rome had its beginning as a small settlement where trade routes crossed. The Italian City States throbbed with creative genius when the peninsula served as the funnel through which the commerce of Europe flowed to the east. When Spain superseded Florence and Genoa, the center of trade shifted with opening up of the Atlantic. No matter where one turns in the book of mankind one will find the story repeated. Wherever commerce flourished, civilization flourished. When commerce ceased, civilization stagnated.

The modern salesman of dairy supplies and equipment is a direct economic descendant of the ancient Phoenician merchant. The galley has been replaced by an automobile. Gold and myrrh and frankincense have been replaced by stainless steel and chlorine solutions. But the major commodity still remains a rich cargo of ideas.

Recognition of the salesman as a clearing house for ideas, recognition of his role as a teacher, is the point at which he emerged from his status as a drummer or peddler into his present position as a professional man. In the dairy industry the agency primarily responsible for this evolution was The Association of Ice Cream Supply Men, known today as the Dairy Industries Supply Association.

When, in 1911, a small group of dairy industrial supply house salesmen formed a society called the National Association of Ice Cream Supply Men, the dairy industry was composed primarily of very small units. The great potential of ice cream had not yet been realized. Many dairy enterprises were sidelines conducted during the owner's spare time. There were few standards, little technical knowledge, and only primitive methods of distribution. There was, however, opportunity.

Sensing this opportunity and also sensing that a larger market for their products lay in a better industry, the supply men's association was expanded. A full-time secretary-manager was secured and the name The Association of Ice Cream Supply Men was adopted.

It was at this point that one of the major contributions to the future of the dairy industry was made. Understanding the unique function of the salesman as a distributor of ideas and the tremendous influence that these ideas could exert on the course of the dairy industry the new association deliberately set out to improve the quality of ideas. The first step was a short, concentrated course in the basic fundamentals of dairy processing. The course was given by Professor C. D. Dahle of Pennsylvania State College. A subsequent course was developed at the University of Illinois.

They were not easy courses. Men who took them have told me that they never worked so hard in their lives. But out of the crucible emerged a corps of men with competent technical training and an improved understanding of the business with which they were associated. The results of this program were expressed in a new sense of cohesiveness among the supply men, a sense of belonging to an industry. They went on the road preaching the doctrine of better quality, better competitive relationships, spreading basic technical information. They coached the small basement ice cream operations into successful business enterprises. They talked accounting and salesmanship and distribution. In a very few years what had been a collection of hit or miss business ventures emerged as a proud industry.

Created an Atmosphere

Of course there were other factors, other influences that contributed to the development of the dairy industry. But because they were constantly circulating among processors, because they were vitally concerned as a matter of self interest in the growth of the industry, and because they were well prepared through training and experience the supply and equipment salesmen could not help but exert a major influence. The sum of their efforts added up to the creation of an atmosphere in which the ice cream industry and the rest of the dairy industry could flourish and flourish it did.

An expanding industry created a demand for more rather than less information and education. In order to enable milk processors to keep abreast of the great technological advances that were taking place as well as to afford manufacturers an opportunity to display their products to a select group, a dairy industries exposition was undertaken. The first show was held in 1926.

By this time the name Association of Ice Cream Supply Men was no longer descriptive of the organization's work. The name was changed to a mouth filling label, Dairy and Ice Cream Machinery and Supplies Association.

The exposition proved to be a success from the start. It stimulated sales of supplies and equipment which justified it in the eyes of the manufacturers who supported it. But on a

CAREFUL ENGINEERING *Pays off!*

...with EXTRA YEARS of SERVICE

Model No. 760

Our oldest customers-1947-still have their aluminum cases for glass in operation... "and from ALL APPEARANCES, they're good for another THREE to FIVE YEARS;- and some, for another SEVEN YEARS-and maybe more" – That's BIG SAVINGS PER YEAR!

Plan for the Future

with the ERICKSON PAPER MILK CONTAINERS - They're just as carefully engineered, just as sturdy; with the same quality and longevity as the glass cases.

Smooth, rounded, perfectly flat surfaces are also features of our aluminum cases for paper milk containers.

Model No. 980

C. E. ERICKSON CO., INC.
Des Moines, Iowa

broader plane it supplemented the informational and educational work that was the priceless by-product of the salesmen's activities. It brought together under one roof all that was the latest and the best in milk processing and distribution. Furthermore as it grew in size and scope until it became the largest single industrial show in the world, it gave a new sense of proportion, a new understanding of the magnitude of the dairy industry.

The growth of human institutions is seldom orderly in the beginning. The dairy industry is no exception. The change in the industrial climate of the nation involved a change in the character of the market for dairy products. Population increases and increases in per capita consumption presented new technical problems. The burgeoning industry attracted the attention of health regulations that are still with us. There was little method or system in these early stages. Gradually, however, one problem after another was attacked and brought under some semblance of control.

One of the major problems that had to be met was the question of equipment satisfactory to health departments. It was not only confusing but it was extremely expensive to have such varied local regulations that equipment had to be custom built for each market. The logical solution was to establish standards for equipment that would be acceptable to the industry, to the health departments, and to the manufacturers. The famous 3-A standards, described by many people as a triumph of industrial statesmanship, was the result.

The standards are created by a committee composed of representatives from the dairy processors, the manufacturers of supplies and equipment, and the health departments. A high sense of practical responsibility permeates the committee's work. Committee members spend long hours and extreme care in developing the standards. One standard, currently being considered, is undergoing its thirteenth examination.

During the course of a recent survey that I made of the new bulk method of handling milk I asked the health departments in each state for specific regulations governing tanks in their state. In nearly every case the reply was, "3-A standards will apply."

One of the leaders in the development of 3-A standards, along with the United States Public Health Service and the Dairy Industry Committee has been the Dairy Industries Supply Association. This was the name adopted by the old Dairy and Ice Cream Machinery and Supplies Association in 1939.

Today, DISA, as the organization is known, makes its headquarters in Washington. A staff of 24 men and women devote their full time to the work of the association. Nearly 300 men on some 50 committees or subcommittees drawn from the membership of 430 manufacturers and jobbers of supplies and equipment are constantly at work carrying out the basic objectives of the association. Formally stated these objectives are:

1. To dignify the function and

(Continued on Page 159)

PRESIDENT OF DISA IS L. N. LUCAS

THE Dairy Industries Supply Association, in little more than forty years, has grown from an informal organization of ice cream supply salesmen into one of the principal trade associations in the dairy industry. One of the most significant factors in this sound, healthy growth has been the long list of able men who have contributed to its development. Most recent name to be added to the roll of those who have held the distinguished and responsible post as head of the Dairy Industries Supply Association, L. N. Lucas.

L. N. LUCAS

Mr. Lucas, a sales engineer by training and inclination, is vice-president of The Bastian-Blessing Company of Chicago. His record as an active and energetic member of DISA includes work on no less than nine committees, membership on the Board of Directors since 1949, vice-president 1952-1953, and president in 1954.

Possessed of the same high sense of industrial statesmanship that characterized his predecessors, Mr. Lucas has given eloquent expression to his concept of DISA's value and responsibilities to the dairy industry.

"As I see it, DISA is an active influence in behalf of responsible dealings between supplier-equipper and dairy processor—a responsibility obviously to be shared by both sides. DISA is also an active influence toward technological advance and in today's industrial society such advance usually becomes synonymous with sound economics. DISA's existence and the supplier-equipper attitudes our organization fosters tend to strengthen the dairy industries on all other broad fronts, too, except perhaps the legislative front, from which time-proven DISA policies withhold it.

"Through DISA, supplier-equipper knowledge and contacts can be summoned to the council table of the whole industry—and a cardinal measuring stick applied by DISA to all its basic policies is: "Will this in its whole effect tend to strengthen the dairy processing industries?" In all these respects the dairy processing field draws values from DISA that are probably priceless.

"I view DISA's responsibilities to the dairy processing industries as those which spring from a relationship of interdependence. DISA would not exist were there not the dairy processing industries which its members serve. There would be no dairy processing industries in the 1954 sense if it were not for the supplier-equipper field. I view these responsibilities as constant responsibilities of DISA. DISA does not consider that they apply only to certain parts of the dairy processing field or more strongly to some parts than to other, but they apply equally to all product or size elements."

TROPICANA IS ROLLING!

Tropicana refrigerated wagons are rolling daily to hundreds of dairies which have found Tropicana, pure, fresh orange juice, instantly popular with housewives. Each day a new Tropicana sales record is established.

Fruit Industries, Inc., has supplied pure orange juice throughout the Summer and continues to guarantee 12-month delivery . . . Now with a vast new orange crop being picked, Fruit Industries, Inc., is ready to launch a national campaign to take Tropicana into every American home . . . Why not roll with us?

Tropicana is important to your dairy because everyone knows that milk and fresh orange juice are the perfect—and most popular—food drinks. All mothers want to serve their families milk and pure orange juice every day. What could be more convenient and economical than having Tropicana delivered along with the morning milk?

People like Tropicana simply because it is the finest orange juice made. It is the finest because we use only the highest quality oranges, produce it with utmost efficiency and speed it to your cold rooms . . . And remember, Tropicana is the only fresh orange juice packed in cartons which is under continuous inspection by the United States Department of Agriculture . . . The USDA stamp is your guarantee of purity and each Tropicana carton has it.

Fruit Industries, Inc., owns nearly 100 mechanically refrigerated truck-trailers, (one of the largest truck fleets in Florida), and gives you the service fresh orange juice requires. Our deliveries are direct, frequent and on schedule . . . Join the Tropicana caravan for more profits and a better rounded food drink program.

SEE US AT OUR CONVENTION HEADQUARTERS — SUITE 558, HOTEL BRIGHTON

Fruit Industries, Inc.

Bradenton, Florida

Reducing the Fat in Sweet Cream For Churning

By W. S. ROSENBERGER and V. H. NIELSEN

QUESTION—We purchase quite a bit of sweet cream varying in fat test from 40 to 50 per cent. It is our practice to reduce the test to 35 per cent prior to churning using either fresh whole milk or skim milk to standardize the test. When we are unable to secure these at a reasonable price we use reconstituted non-fat dry milk solids.

We understand that some operators use water for reducing the fat test, but feel that this is undesirable and that the butter churned from such cream might be inferior in quality to that which was standardized with skim milk. We would appreciate your thinking on this.

ANSWER—If the fat content of your cream is much above 40 per cent it is undoubtedly a good practice to dilute it somewhat before it is churned. The foremost reason for doing this, of course, is to avoid the body and texture defects (granular or greasy) which often accompany the churning of high fat cream.

I am inclined to agree with you that it would be inadvisable to effect this dilution with water. It might indeed depreciate the quality of the butter, partly because the water might bring contaminating organisms into the cream (although this might be corrected by pasteurization) and partly because the churning of heavily watered cream also might result in granular texture of the butter.

The biggest damage, however, might befall the churning efficiency. During the churning process and the gathering of fat globules into microscopic butter granules, a heavy foam is elaborated. The foaming is an essential stage in the churning process, and the foam walls, in which the fat globules gather, are built up of the proteins (casein and albumin) in the cream. Dilution with water would decrease the already low protein percentage in the high fat cream and disturb the normal colloidal relationships between fat globules and the proteins. The foam would be elaborated with difficulty, the grouping of fat globules would be retarded, and the churning losses would increase.

It shall be admitted, that a high protein: fat ratio (like in 18-20 per cent cream) also result in higher churning losses than the protein: fat ratio of cream with 37 per cent fat. This was demonstrated by Bird and Derby (1). These investigators standardized the experimental creams with their own skimmilks (i.e. skimmilk resulting from the original whole milk separation) and did not consider dilution with water. They concluded, however, that the churning loss is a function both of the fat percentage and the protein percentage of the cream.

(Please Turn to Page 156)

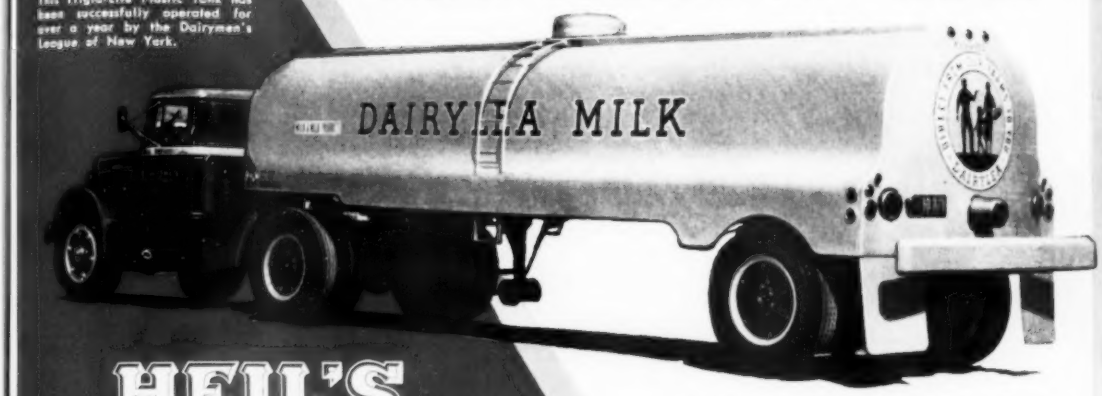
SEAMLESS, SOLDERLESS, STURDY, SANITARY **METALWARE**

SUPERIOR

JOHN WOOD COMPANY
Superior Metalware Division
509 Front Avenue, St. Paul, Minn.

JOHN WOOD

THE NEW HEIL FRIGID-LITE MILK TRANSPORT TANK



This Frigid-Lite Plastic Tank has been successfully operated for over a year by the Dairymen's League of New York.

HEIL'S NEW-PROCESS PLASTIC OFFERS

Here's a brand new Heil Milk Transport Tank which combines all the long-lasting, no-maintenance advantages of plastic with the advanced Frigid-Lite plastic molding technique to give you the strongest lightweight tank available for more profitable milk hauling.

PRACTICALLY NO MAINTENANCE! Frigid-Lite plastic tanks take more abuse without damage. The smooth, hard plastic shell will not dent or rust, and withstands extreme weather conditions. No painting is necessary.

BETTER INSULATION! An exceptionally good vapor seal results from bonding the insulation material and Fiberglas-reinforced plastic into a one-piece tank. Moisture cannot infiltrate the plastic to deteriorate the insulation. Also, there are no joints or internal bracings to transfer heat.

LIGHT WEIGHT! The very light weight of Frigid-Lite plastic construction assures bonus pay loads every trip.

GREATER STRUCTURAL STRENGTH! Exceptional structural strength of the tank is due to the Frigid-Lite construction, where reinforced plastic faces are bonded to a core of insulation to provide an integrated, extremely rigid unit.

SEE THIS NEW TANK
and the
HEIL
PLASTIC FARM PICK-UP TANK
AT THE
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OCTOBER 25-30
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MTT-44

Stainless Steel

This is an electric furnace. The ingredients that make up stainless steel, the chromium, the nickle, the ordinary steel, and other material, are loaded into the furnace and melted down. The furnace is partially mobile and can be tipped when the time comes to pour off the molten mass. The liquid metal is transferred into a huge ladle that carries it to a series of ingot molds. The ingots are rolled into slabs as shown in succeeding pictures.

By NORMAN MYRICK

Exclusive feature

For most of its brief life, milk knows no other companion than the stainless steel surfaces of the processing and handling equipment through which it passes on its way to the consumer. Indeed, with a modern pipeline milker and a bulk tank operation, the milk comes in contact with nothing but stainless steel until it is placed in the final consumer package.

No other material exercises such a constant influence. No other material has such a direct relationship to all of the aspects of quality control in the dairy industry as this brilliant, rugged metal.

Stainless steel is the name given to a family of steels that contain 11% or more of the remarkable metal we know as chromium. One of chromium's outstanding characteristics is a high degree of resistance to corrosion. To enhance this corrosion resistant property and to improve its mechanical properties, stainless steel may contain other elements such as nickel, titanium, and molybdenum. The result is a steel that can be readily fabricated, is strong, tough, durable, but above all a steel that is highly resistant to the corrosion-producing environment that is found in milk processing operations.

Within the stainless steel family there are various grades or groups. One group may have more carbon, chromium, or nickel than another group, or it may have more of some other of the several elements that go into stainless steel. As a result of these variations, slight though they may be, the group characteristic is established. These groups within the stainless steel family are designated by common grade terms such as 18-8, 25-12, and 25-20. The first number stands for the per cent of chromium, the second for the per cent of nickel. Thus 18-8 stainless steel contains 18% chromium and 8% nickel.

The family groups are broken down into types. For the dairy industry, by far the most common type used is one designated as 302. Another type, 304, is also used, but less extensively. A third type, 316, is used only occasionally. All of these types belong to the 18-8 group.

The popularity of 302 is due to a happy combination of many properties. The basic combination, however, is a high degree of resistance to corrosion and relatively lower cost. Type 316 is more corrosion resistant but it is also more expensive. In those parts of dairy processing equipment where corrosion aims its fiercest attacks, 316 is often used. But for most areas, 302

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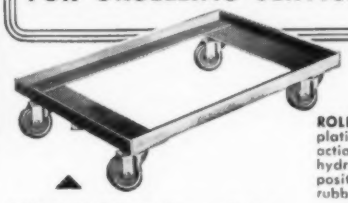

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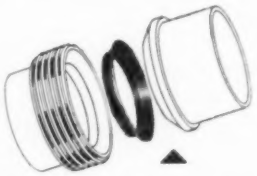

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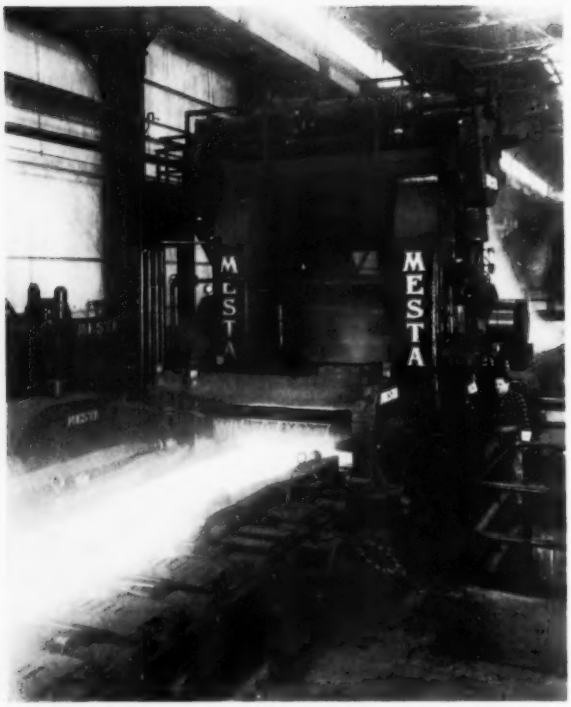

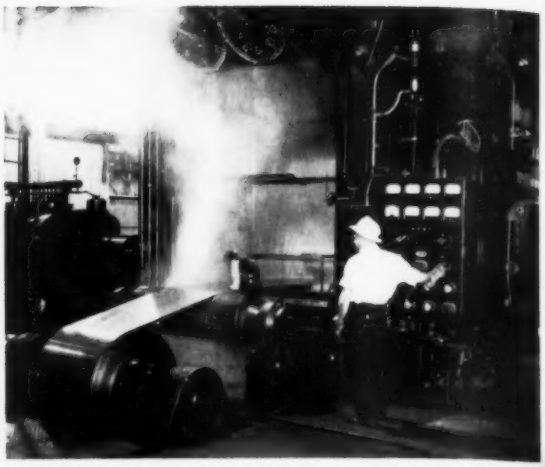

A strip of steel goes through the cold rolling mill. Cold rolling imparts tremendous strength to the steel and gives it a hard surface that enables it to take a high polish.

This white hot steel slab is being reduced to a hot strip. This picture shows the slab as it passes through one of the ten stands that comprise the rolling mill. Each of the stands reduces the thickness of the slab a little bit. Starting out about 3" thick the slab is reduced to a thickness of .150".

has been more than adequate to meet the needs of the dairy industry.

A table showing the principal ingredients and differences of stainless steel types is shown below.

It can readily be seen from this table that the presence of molybdenum sets 316 apart from 302 and 304. The presence of molybdenum gives 316 a higher resistance to corrosion.

Resistance to Corrosion

The corrosion resistance of stainless steel stems principally from the nickel and the chromium. When stainless steel is exposed to the air, it results in the creation of a thin surface film which acts as a protective coating. If this film is penetrated by a scratch, the new surface thus exposed forms its own protective film. In effect, stainless steel is self-healing.

The outstanding characteristics of stainless steel are these: normally nonmagnetic, highly susceptible to work hardening, high corrosion and heat resistance, and strength over a wide temperature range.

Many of these characteristics are dependent on what is called the "austenitic" structure of the chromium-nickel stainless steels. Iron and carbon steels may exist in one of two basic forms depending upon their temperature. Above critical temperatures, iron assumes a form known as "gamma" iron. Carbon and other elements are dissolved in the iron to form austenite. The crystalline form of austenite results in a more ductile metal which is easier to work.

Below the critical temperature, iron and ordinary carbon steel assumes a form known as "alpha" iron and reject carbon as carbide. Chromium, if present, and other elements may remain in solution. The solution is known as ferrite. The crystal form of ferrite occurs in tungsten, chromium, and molybdenum. It is a less ductile form.

Chromium, by itself, has little effect on the austenitic form in iron alloys while nickel tends to preserve it. One of the important functions of nickel in stainless steel, therefore, is to preserve the austenitic form.

Chemical Elements	18-8 Type 302	18-8S Type 304	18-8 Mo. Type 316
Carbon	.08 /0.20*	0.08 Max.	0.10 Max.
Nickel	8.00 /10.00	8.00 /10.00	10.00 /14.00
Chromium	17.00 /19.00	18.00 /20.00	16.00 /18.00
Molybdenum			2.00 /3.00

*Usually limited to 0.12 for dairy equipment.

When stainless steel is "worked" in the process of fabricating it into various forms, a transformation of the structure of the metal takes place. If the steel is worked "cold" the transformation is gradual, from the austenitic form to the ferritic form. This transformation gives the steel tremendous strength and considerable hardness but does not affect the resistance to corrosion. If the austenitic material is heated to any range of temperature at which the entire carbon content will dissolve, the carbon will not be precipitated if cooling is rapid. However, slow cooling from the temperature of complete carbon solubility will precipitate some carbon. Such precipitation is believed to be chromium carbide, which withdraws a high proportion of the chromium from the austenite and lowers the resistance of the steel to corrosion. This precipitation of carbide occurs most frequently in welded areas where heat has been applied in the welding process and cooling has been slow. That is why you sometimes experience corrosion problems with your processing equipment around welded seams and joints. But most fabricators now use special methods for rapid cooling – such as copper chill bars. Type 316, which contains molybdenum, does not precipitate the carbides as readily and hence has a

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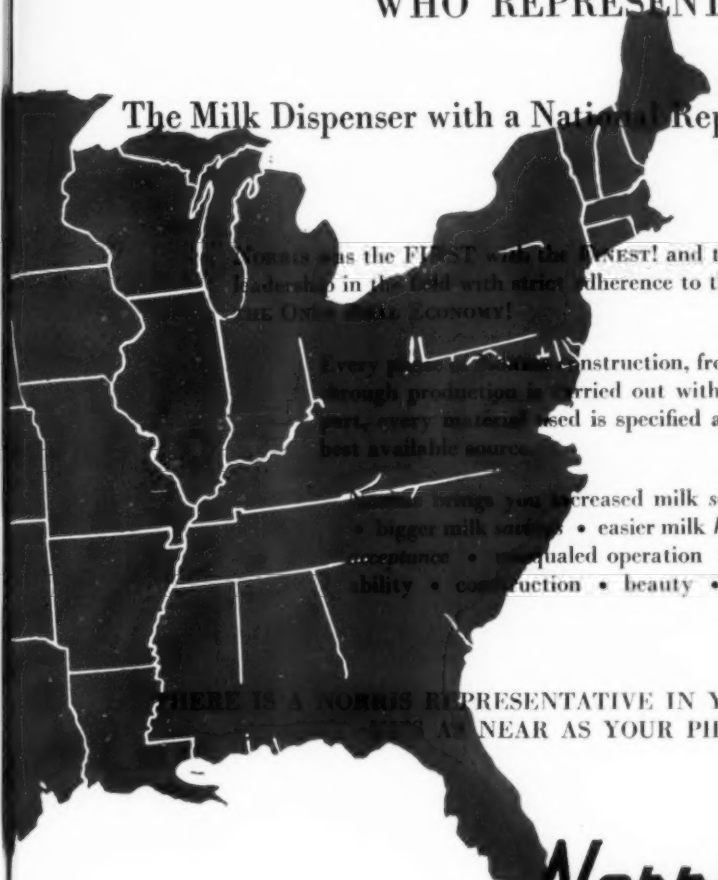

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Quality control is applied in steel making just as it is in the milk business. Constant testing takes place during the processing cycle. This man is testing the tensile strength of stainless steel. Dozens of other tests are made.

A sheet of 18-8 stainless steel gets its final polish. Workman in the foreground is using lime to clean oils from the steel. Finish is given by abrasive belts at right. Most widely used finish on dairy equipment is a Number 4 finish.

higher degree of corrosion resistance around welded joints.

One of the reasons for the popularity of type 302 stainless steel is the limitation of its carbon content and increase in chromium. The precipitation of the carbide, which decreases the corrosion resistance of stainless steels, obviously would not take place if there were no carbon present to be precipitated. In 302 the carbon content is limited, which reduces the harmful precipitation of the chromium carbides.

Furnace and Rolling Mill

The actual manufacture of stainless steel is a symphony of blazing heat and thundering machines.

Stainless steel begins in a gigantic electric furnace where the raw materials, high grade steel, chromium, nickel, and other ingredients are melted down to merge into one great caldron of molten metal of desired composition.

The molten steel is drawn from the furnace into a massive ladle that carries it to a series of ingot moulds where it is poured and allowed to cool. The ingots are rolled through powerful rollers and formed into slabs or billets. In the process of making the ingots, certain surface imperfections are unavoidable. These imperfect areas are cut off leaving only sound metal. The surface of the remaining slab or billet is conditioned, usually by grinding, to remove scale and other slight surface defects. Then the product or slabs are reheated and further rolled into sheets of an intermediate thickness.

The product goes into the rolling mill as a slab about 200 inches long and 3 inches thick. It ends up as sheet as much as a half mile in length. The sheet or strip is coiled by a mechanical coiler for easier handling. The stainless steel, in the form of coils is then annealed to relieve internal stresses. The annealed coils are then pickled to remove scale and oxide from the surface.

The steel is now ready for another rolling, which is done while it is in a cold state. A series of heavy, tremendously powerful rolling mills reduce the long strips to the desired thickness. Strip steel with a thickness of .150 of an inch is reduced by the cold rolling process to as little as .018 of an inch in thickness.

Cold rolling brings about a transformation toward the immensely strong ferritic form without seriously impairing the ductile and corrosion resistant properties. It gives the steel a surface of high density and uniform smoothness so that it will take a high polish.

Another annealing follows the cold rolling process, in order to put the metal into a state where it can be readily worked by fabricators. After the annealing it is pickled again. The resulting steel has what is called a "2D finish." Often the steel is given another "pass" through the rolling mills in order to smooth out the acid etchings from the pickling process and to put on a luster. This is called a "2B finish." Some of our dairy equipment is made from stainless steel with a 2B finish and polished after fabricating to a so-called number 4 finish.

The sheet steel is still in the coil form. The coils are cut up into appropriate lengths, trimmed and flattened. The sheets are then put in a polishing machine where they are ground with various grits on an abrasive belt. Grits vary in coarseness. The measure is the coarseness of the screen through which the grits can pass. A 60 grit, for example, is a grit that can pass through a screen with 60 openings per square inch. The polishing process generally starts out with a 60 grit belt and goes up to as high as 320 grits in successive polishes.

Finishes Designated by Number

The finishes that are imparted by successive polishings are designated by numbers. A number 4 finish is the most widely used. The next finer grade is the number 6 finish. Although the number 4 finish is not as smooth as a number 6, it is nevertheless, more desirable for dairy equipment. The reason is simply the fact that the microscopic grooves in a number 4 finish are large enough to

(Please Turn to Page 144)

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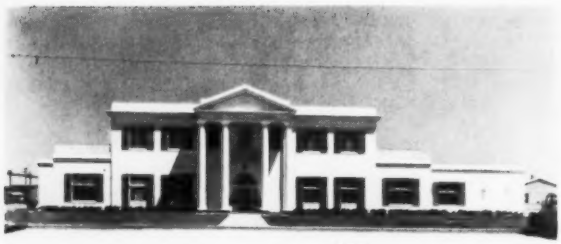


The widely different treatment given to the facade of these two milk plants is an indication of the great variety that one finds in design. But, although the architectural style may be the result of an aesthetic idea, the dimensions and space dispositions are dependent upon such consideration as size of the equipment, nature of the operation, and character of the terrain.

SO YOU WANT TO BUILD A PLANT—

Then Select a Team to Develop a Sound Program and Insure the Success of Your Venture

By **FRED W. DEGENHARDT**

Exclusive feature

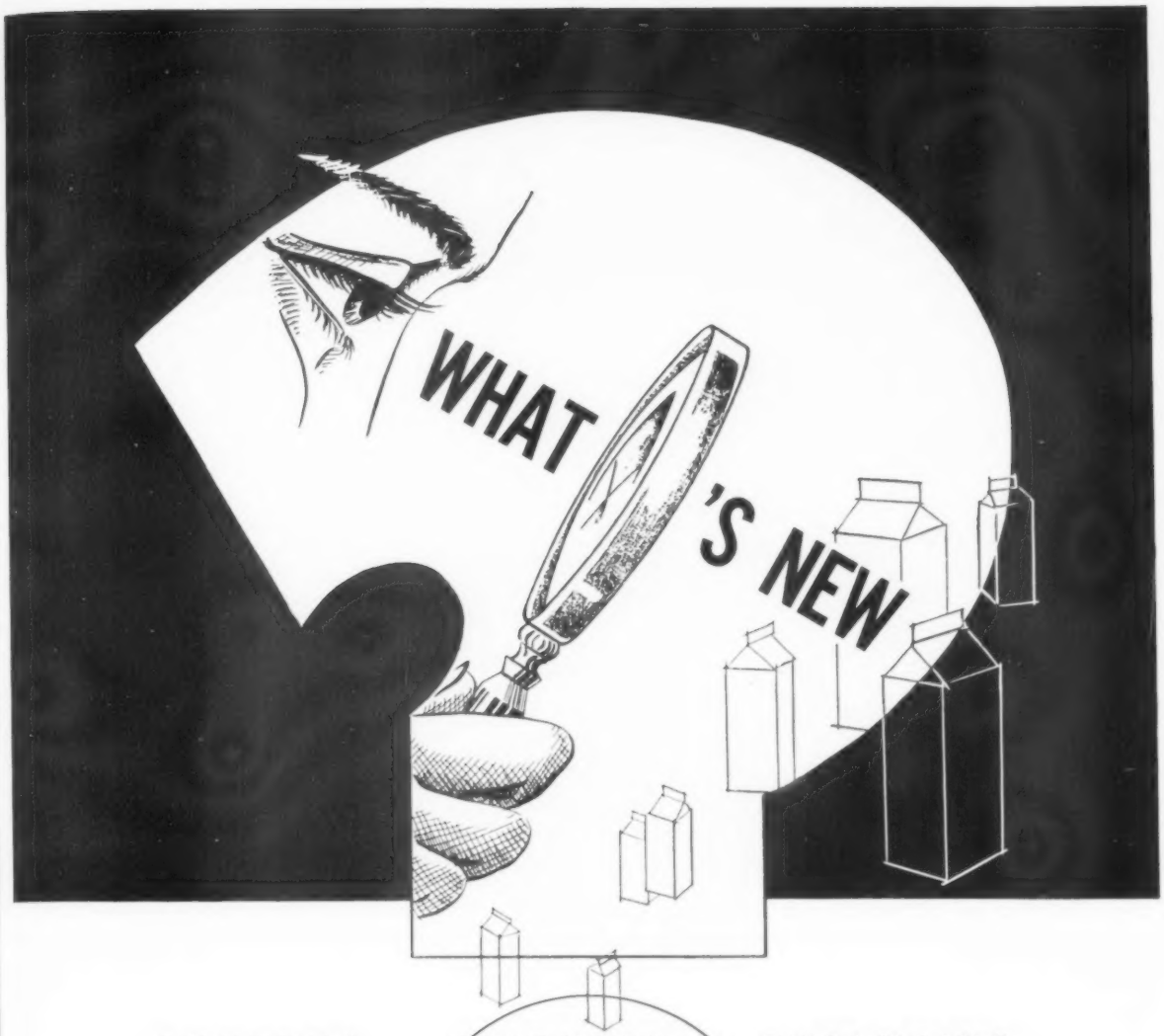
The secret of putting together all of the complicated elements involved in a dairy operation and expressing them in terms of a well designed plant is teamwork. Rare indeed is the individual who knows everything and thinks of everything that must go into a new plant. Real success comes from a team effort where many ideas, many minds are brought together in a common endeavor. To build such a team select the men in your organization most familiar with sales and production, combine their talents with those of an Architect-Engineer and set them to work to formulate a program. Simply stated, a program is an outline of the requirements of the new plant — of products and quantities, methods of production, location, preliminary plans and a budget estimate of all the costs involved. Assign each member of your team the responsibility of studying all of the complex details that make up an efficient and profitable plant. If sufficient time is allowed them and sound judgment used in making forecasts and decisions, the project will get off to a good start.

Starting with the sales member of the team, he is charged with determining the market areas, the consumer demands and preferences so that the types of products and the quantities of each to be produced may be measured. He decides on the number of retail and wholesale trucks which will be required to serve the territory and whether the trucks are to be garaged or parked in the open. His analysis of the delivery time and costs will aid in selecting a general area of location of the proposed plant. He must answer such questions as glass or paper or both and in what quantities, ½ gallon and 1 gallon jugs, the future in increased wholesale sales and the effect that the trend toward shopping centers will have on sales. If there is undeveloped, residentially zoned land in the area suggested what effect will the development of this land have on future sales? Then, too, if special sales campaigns are planned for by-products, he must determine the seasons and the quantities expected. These and many other questions, better known to the sales executive, will have to be carefully analyzed and studied before this man's work is done.

General Flow Diagram

While the salesman is busy with his products and quantities, the production man plots a general flow diagram of the products from raw materials to finished products on the trucks. Each step of the operation must be shown on the diagram from receiving, weighing, storing, testing, pasteurizing, etc., right on through to the loading of the trucks. Each part of the diagram has a direct bearing on the final plant layout. For example, raw milk may be available for delivery in railroad tank cars, over-the-road tank trucks, or in cans by producers, or a combination of these. If by tank car, a site served by a railroad is a requirement. If by tank trucks, provisions must be made for unloading and washing the trucks. Driveways must be planned for ease of maneuvering such trucks. Delivery in cans, by the producers, means a complete receiving deck with weigh tanks, receiving vats, can washer, etc. The method of delivery of other materials used daily such as bottles, paper containers, caps, cases, cleaning solutions and powders, etc., require planning of areas for receiving conveniently located for use within the plant located and arranged in such a manner so as not to interfere with raw milk receiving or finished product delivery.

By relating the flow diagram with the products and quantities determined through sales research, and a carefully planned schedule of time allowed for the daily operation, a breakdown can be made of the number of pieces of equipment and their capacities which will be required to produce the demand in the time al-



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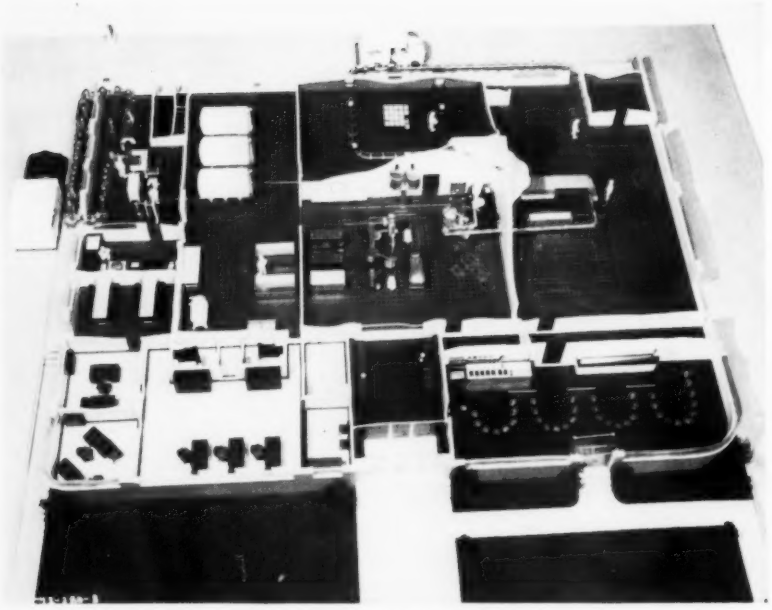


Equipment manufacturers can be of inestimable help in planning a new plant. Shown here is a device developed by Cherry-Burrell Corporation, using scale models, which enables the builder to visualize the proposed plant in three dimensions.

lowed. Here the smart production man will take full advantage of the knowledge and experience of the sales engineers of the various equipment manufacturers in developing a continuous flow of product with lost time and idle equipment held to a minimum. *The writer believes that a plant should be laid out with sufficient equipment to process the average daily load. Occasional peak demands, caused by seasonal demands, special sales campaigns, etc., can be handled by working extra hours. Capital expenditure for plant and equipment and the expense of maintaining equipment used only for the occasional peak demand and idle for the balance of the year, is not economical.*

Finally the flow diagram must include a schedule of truck loading to determine the sizes and locations of cold storage rooms, returned products rooms, platforms, conveying systems, etc.

Full advantage of the services and ability of an Architect-Engineer should be taken by making him a member of the team from its inception. His fee, usually only slightly higher than that of a real estate broker when purchasing the site, includes a continuous service from preliminary conferences right on through to the finished plant. His advice during the early stages of the development of the program, when preliminary decisions are to be made, may determine whether or not the program is based on sound assumptions and judgment.

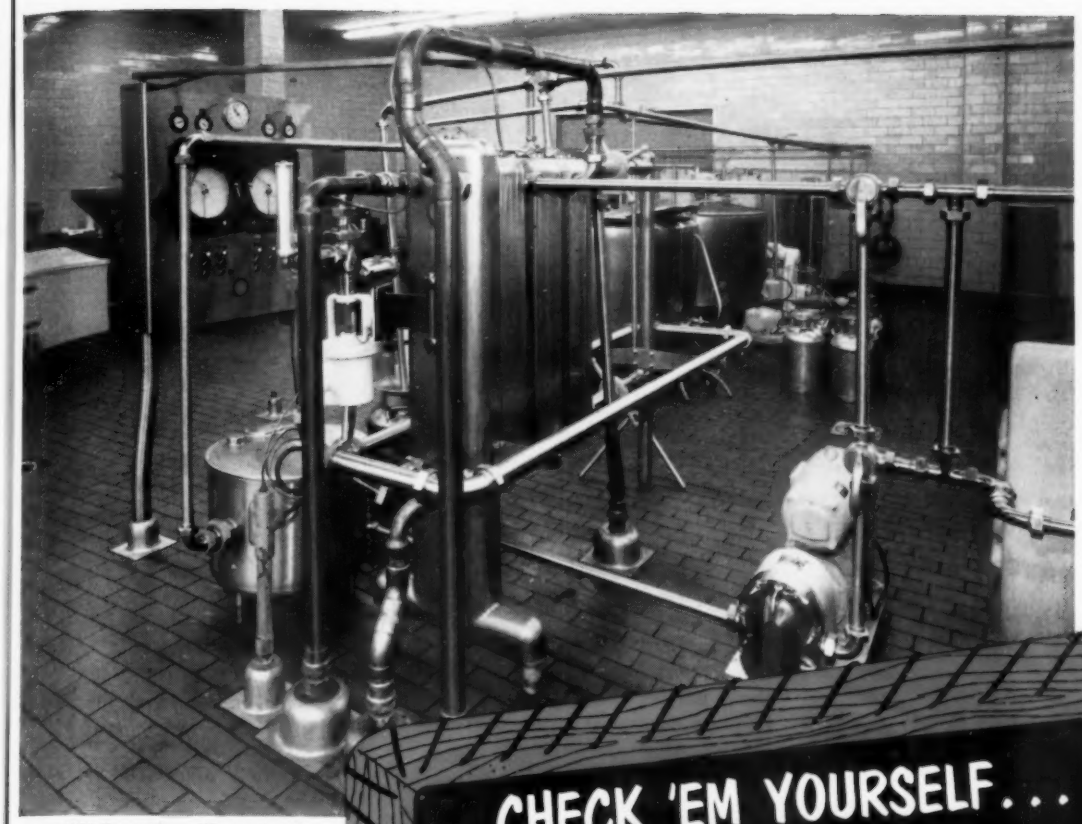
The general area of location of the plant is dictated by surveys of consumer demands, finished product delivery costs, delivery of raw materials, etc. However, a program based on these alone would not be sound. A case in point is that of a client, who after developing his own program and purchasing a low-priced site, commissioned our office to prepare the plans and specifications for a small manufacturing plant. We spent less than one day investigating the site and recommended he abandon it for a more favorable location. Circumstances were such that this was not possible.

Our investigation revealed the site to be filled-in ground and the street on which it fronted private, with the property rights of adjacent and opposite owners extending to the center line of the street. City sewers, water service lines, electric power and gas (required in the proposed process) had not been installed in the street because it had not been deeded over to the city. The filled-in land made it necessary to install deeper and, therefore more expensive, foundations. Permanent easements, involving delays and legal expense, were obtained from adjacent property owners to permit the running of water service pipes across private property. The proposed building was reduced in size and replanned to allow space on the site for the installation of a septic tank for sanitary wastes and dry wells for roof water. The cost of erecting a pole line bringing electric power to the building was borne by the owner and he ended up using bottled gas for his process which will effect his operating costs for years to come. This is an extreme case, but a true one, of an owner developing a program, sound in all but one respect, that being his failure to take full advantage of the services of his architect.

Thus, as the program is being developed and before reaching a final decision on the general area of location, zoning rules and regulations, sub-soil conditions, general terrain, sewers, water supply, electric power, fire protection, etc., should be thoroughly investigated by the Architect-Engineer. Traffic conditions and roads to and within the area may have an effect on the conditions of delivery and if it is decided that a siding is necessary, the area must, of course, be served by a railroad. Seldom is it found that all conditions and services are ideal but when compromises are made and alternatives accepted the effect on the operations and costs should be fully analyzed and understood before including them as part of the final program.

Arriving at Physical Dimensions

As the flow diagram is developed the desired relationship of one process area to another is indicated and the equipment required in each area is shown with its relationship. From this the layout begins to take form on the drawing boards of the Architect-Engineer as sketches. Sketching and studying is continued until all members of the team are agreed that the layout will meet all requirements as outlined in the program developed so far. All dimensions of areas and equipment shown on this layout are approximate since the final selection of equipment must still be made. As the selections are made the physical dimensions are furnished by the equipment manufacturer and these, with proper clearances for operation and maintenance, are incorporated in the sketches. Mechanical services re-



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2215 S. Michigan Ave.
Chicago 16, Ill.

quired for the operation of the equipment are also furnished by the manufacturer and boiler and engine room equipment capacities are computed. (These decisions should be carefully made for they have an effect on the size and shape of all processing areas. In other words they determine the final dimensions of the building and site, the boiler and engine room design and sizes, electric power demand, water supply, etc.)

At this stage of development we find that scaled templates of each piece of equipment help to visualize the layout and save time in arriving at a final solution. We know of one manufacturer of equipment who, realizing it is sometimes difficult to visualize in two dimensions, has had three dimensional, scale models made of all pieces of milk equipment. When working with sales engineers of this firm the entire plant can be seen in three dimensions and "bugs" which could not be noticed in two dimensions are eliminated before work starts on the plant.

However, whether working with templates or models, this part of the program is completed when a preliminary drawing of the entire plant, including all process areas, equipment, boiler and engine room, cold storage rooms, platforms, driveways, sidings, storage rooms, offices, toilets, locker rooms, etc., is made and approved. Physical dimensions of the proposed building can be determined and, allowing for future expansion, access roads to and around the building, garaging or parking of trucks, parking of employees and visitors' cars, etc., the minimum size of the site can be plotted.

Selection of the Site

The final selection of the site is made as a result of an investigation similar to that made for the general area of location but in more detail and with more information available from the preliminary plans and studies. If all conditions of the site, such as sub-soil, general contours, public utilities, sewage disposal, accessibility, advertising value, etc., are favorable to the costs, operations and maintenance, an agreement will soon be reached. However, of the sites available in the general area of location, quite often it is found that no one site meets all requirements. Here, again, it may be necessary to make compromises and accept alternatives but the effect of these should be known and agreed on before completing this part of the program. To cite an example is probably the best method of getting this point across.

We are presently investigating a site for a client whose program has established a location. On the site available the sand and gravel ground is favorable for foundations, driveways, trucking and heavy equipment. The ground is level, located on a main highway near a clover leaf and fine for advertising value. City water, sewers and three phase electric power are, however, not readily available to the location. Because of building code requirements and the area of the building it was necessary to chose sprinklers rather than a fire wall dividing the building. So in addition to a source of water supply for general purpose and process use, a supply, approved by the Underwriters' Laboratories for sprinklers, must be provided. City water is available at some distance from the site but the owner must bear the expense of the installation of the new main. Well water is available in sufficient quantities at approximately 75-90 feet below the surface of the ground. The Underwriters will accept a one-source, city water supply but not a well unless an overhead tank of approximately 40,000 gallons capacity is installed. As part of this program we are preparing estimates of the cost of installing a water main to the site and the yearly cost of water as well as the cost of drilling a well with its pump, electric wiring, pressure tank and overhead tank of the above stated capacity. The yearly cost of operating and maintaining the pump, well and tank will be compared with the cost of buying water.

Sewage disposal requirements are well defined by the State Board of Health so cost estimates on disposal systems will be based on quantities of waste and design. The electric power available at the site is single phase but the power company will furnish three phase on the pole line at the front of the site. Under one rate classification the utility company bears the expense of bringing power of the proper phase into the building. Under another rate the owner pays all costs. Before our investiga-

(Please Turn to Page 156)

eenwood Dairies' milk quality
hows vast improvement
with the bulk handling system

PAUL SAUERBRY, owner of Greenwood Dairies, measures the amount of milk in the Stainless Steel tank on the farm of one of his producers.

	JAN. 13, 1953	JAN. 15, 1954
Farm A	46,000	20,000
Farm B	62,000	16,000
Farm C	14,000	2,000

These figures are bacteria counts in the milk samples taken from three of the producers supplying Greenwood Dairies, Langhorne, Pa. The principal reason for the significant drop in each case was a switch to the bulk milk handling system in Stainless Steel tanks.

Paul Sauerbry, owner of Greenwood Dairies, finds milk quality at the farm level vastly improved since his 20 producers installed Stainless Steel farm tanks. He used to accept milk with a count up to 100,000. He has cut the figure to 50,000 now and rarely rejects milk. Since Greenwood Dairies installed the bulk handling system, it has consistently been among the top 10 dairies of 39 in the area in low bacteria count.

The bulk handling system results in higher butterfat content, too, because it reduces stickage losses. As a result, farmers are averaging five to ten cents more per hundredweight for their milk.

Faster pickups from the bulk tanks has made possible reduced hauling charges. The record run was 22,585 pounds of milk picked up in 5½ hours. Hauling charges at the Greenwood Dairies have been reduced 15 cents per hundredweight for producers who own tanks.

Investigate the bulk handling system that makes possible such an improvement in milk quality accompanied by a reduction in labor and costs. As the producer of USS Stainless Steel, from which many farm tanks are made, we have worked closely with manufacturers of these tanks. We'll be glad to put you in touch with our customers for detailed information. Mail the coupon.

MR. SAUERBRY starts the pump that transfers milk from the Stainless Steel farm tank to the Stainless Steel pick-up truck.

Agricultural Extension Section
United States Steel Corporation, Room 4506
525 William Penn Place, Pittsburgh 30, Pa.

Please send me literature about farm bulk milk equipment. Send information to:

Name .....

Title .....

Company .....

Street .....

City ..... Zone .... State .....

United States Steel is a steel producer, not a bulk milk equipment fabricator. Your request, therefore, will be sent to manufacturers who fabricate bulk milk equipment for farm use.

UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

UNITED STATES STEEL CORPORATION, PITTSBURGH • AMERICAN STEEL & WIRE DIVISION, CLEVELAND
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO • NATIONAL TUBE DIVISION, PITTSBURGH
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.

USS STAINLESS STEEL

SHEETS • STRIP • PLATES • BARS • BILLETS • PIPE • TUBES • WIRE • SPECIAL SECTIONS

USS

UNITED STATES STEEL

Strike, Strike Threats Have Featured Labor Relations 1952-1954

By PAUL POTTER

- **Strikes have taken place in 14 markets**
- **Wage rates show no sign of levelling off**
- **Fringe benefits increasingly important in the payroll**
- **Constructive union leadership needed**
- **High labor costs forcing management into labor saving machinery**

Exclusive feature AMR

A seemingly endless route of higher labor costs is causing milk dealers to make their biennial trek to the Dairy Industries Exposition with a more than casual determination to see what can be done with equipment and methods to hold down payroll expenses.

Two years ago there were more than a few milk company executives who felt that this labor cost trend might level off, once the World War II and Korean conflict were no longer causing abnormal manpower demands. They noted speeches by such informed labor leaders as President Dave Beck of the International Teamsters Union, telling the public and his own local officials that the times were not good, economically. That doesn't seem to have been heeded in a majority of local milk markets, although in some the unions have counselled with their dealers and held back on costly demands.

No less than fourteen milk strikes have taken place in sizable markets in the brace of years. Both Teamsters and CIO locals have been involved. When you add to these the markets in which dairy local unions were on the verge of striking, but didn't because of last minute settlements, the record covers most large milk marketing areas of the country, and a few in Canada.

To name some of the cities in which strikes occurred; there is of course the largest, the New York-New Jersey metropolitan area, in October, 1953. There might have been a second strike in this area in 1953 by the milk haulers from upstate, had not the International taken over and led the parties into arbitration. The Boston market's strike in April, 1953 also led to an arbitration, via the use of state legislation which resulted in an award in December, 1953, covering a 3-year period to 1955.

Many Markets Affected

Other work stoppages involving dairy operations were those in Nashville, Tenn.; Phoenix, Ariz.; Reading, Pa.; Rochester, Minn.; Detroit, Mich.; Des Moines, Iowa; Toronto, Ont., Canada; Scranton, Pa.; Cheyenne, Wyo.; Tucson, Ariz., Danville, Ill.; and Cincinnati, Ohio. In some of these ice cream operations were struck to force a shorter work week or other costly demands.

"When will this drive for higher labor costs ever stop?" ask so many dairy operators (and even some labor leaders in private). Others comment that the dairy industry is much in need of some factual but plain talk by both the executives and union leaders to point up the effects on the future of milk production and distribution. Farmers' dairy bargaining groups are much concerned about the rising costs of labor while their milk prices are declining. Even Department of Agriculture officials cite this possible handicap to fullest consumption of dairy products under the pressure of government support prices and big stockpiles.

Part of the answer is coming back to union organizers who have been quite active under the stimulus of national drives for increased membership. While these men hold out attractive promises of improved condition to unorganized dairy employees, our information indicates that about half of the elections held are going against the unions, and in some cases petitions for employee elections under the Taft-Hartley law are being withdrawn by unions to avoid defeat.

This shows clearly that many dairy employees are concerned about having to stand out in a strike against their employer, or about the future of their own jobs under union rule. It is not to be taken as a trend toward anti-unionism in the dairy industry, but to show the need for some real leadership by the unions.

Unions need to convince more employees and more employers, that they can contribute constructively toward building teamwork into growing business, instead of trying to see how much toll they can take. We know that many employers are talking this way in their negotiations with unions. They are keeping in closer touch with their own employees in an effort to give their men a better understanding of business operations.

By the same token, dairy employers find they must keep abreast of the trends in this industry and similar types of employment, in order to have their employees enjoy and appreciate their lot as compared with others doing similar work. This does not mean a simple comparison of wage rates with others in the industry or area, any more. So many so-called

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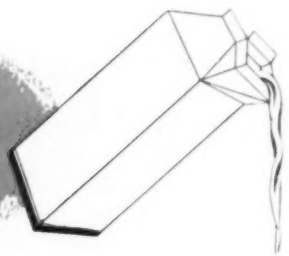
WITH THE AMAZING NEW PITCHER SPOUT

There are seven modern Kieckhefer carton manufacturing plants . . . each strategically located to serve any area with unmatched speed and efficiency. Trees from our own forests feed our pulp and paper mills which in turn supply our seven plants. This unbroken chain enables Kieckhefer to maintain complete and strict quality control through every stage of manufacturing.

Another important Kieckhefer service is the periodic inventory check by your Kieckhefer representative. He will assure your dairy of a supply of cartons at all times.

More and more dairies are switching to the great Kieckhefer Pure-Pak service . . . get the facts and you will, too!

KIECKHEFER
CONTAINER COMPANY



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CONVENTION HALL, ATLANTIC CITY
OCTOBER 25-30
Booth 207

THERE'S A KIECKHEFER PLANT NEAR YOU...

• CAMDEN, N.J. • DALLAS, TEXAS • JACKSONVILLE, FLA., • HASTINGS, NEB. • THREE RIVERS, MICH. • WHITTIER, CALIF. • VANCOUVER, WASH.

LEADING DAIRIES EVERYWHERE ARE CHANGING TO KIECKHEFER PURE-PAK. Have our representative give you the facts.

De Marsicco Photo.

This queue waiting for milk outside the processing plant during the New York milk strike last October is representative of similar scenes in Washington, and other cities when strikes were called during the past two years.

United Press Photo.

Even a "quickie" strike may affect a wide area. Milk tank truckers from upstate New York were halted on the fringe of the metropolitan area during the October strike to await word of the outcome of negotiations.

"fringe benefits" are a part of the total compensation plan, that all of these must be taken into account in the "package" that the employee gets. The full impact of this package on the payroll is an important consideration.

Among the types of benefits beside direct wages being granted dairy workers are: vacations with pay, health and welfare benefits which include sickness and accident, hospitalization and surgical payments, retirement pay or pension payments, group life insurance, permanent disability compensation, days off for cause without loss in pay (such as sickness, or death in immediate family), opportunity to bid for job openings, seniority rights in promotions or in holding jobs during layoffs, furnishing or laundering of uniforms, rest or meal periods on company time, pay for holidays not worked or premium pay when worked.

The general practice in recent years has been to combine one or more improvements in the so-called fringe or indirect wage category, along with some increase in wage rates. In some cases the increase in wages has been foregone because the amount of fringe benefit has been as substantial as wage increases in the past. In other cases the workweek has been reduced substantially with no decrease in "take home" pay.

Six Day to Five Day Week

Obviously a reduction from a six-day workweek to a five-day workweek at the same pay is an increase of 20% and in most markets this is worked out over a period of months or years, or else there is a reduction in production or distribution operations, such as elimination of Sundays in plant and route schedules. Where the parties to such programs cannot agree amicably, there have been work stoppages or settlements have come when a strike is about to take place.

These settlements are usually in the nature of a "shot gun wedding" affair. Such settlements have given workers and unions a feeling that the "traffic will bear it and we can get it without a strike." It is the pyramid of such settlements that has brought the industry to a seriously alarming level of compensation rates and labor costs.

"No one ever wins a strike" is the axiom of negotiators and mediators. The loss of business from prolonged strikes is apparent to most unions and their men, as well as the bosses. Yet why do so many take place in the milk business? Our reaction from most people in the industry is that every strike called by a union leader is expected to be a "quickie" and thus not seriously harmful to the business. Most milk strikes don't last over a couple of days. But enough have gone for longer periods to have left in their wake the realization that they are carried out at the expense of home delivery in the market, with stores gaining volume.

We hear a great deal in the industry about these costly strikes and their harsh-termed settlements. However, it should be remembered that there are a considerable number of major cities

We had what was new in '52
We'll have more in '54
FROZEN 50% CREAM
FROZEN 80% CREAM
FROZEN BUTTER
FROZEN EGGS
FROZEN FRUITS
FROZEN CONDENSED
BRYANT CENTRIFUGAL LIQUEFIER
FLUID CREAM
ICE CREAM MIX
STERILE MILK OIL
SOUR CREAM
CREAM CHEESE
HIGH SCORE BUTTER
BOOTH L-14
ATLANTIC CITY · N·J
OCT·25 TO OCT·30
· BRYANT · MACHINERY · CORP · 67 VAN REIPEN AVE · JERSEY CITY · N·J ·

The Sparkling Clean Surfaces of this Jamison Stainless Clad Door add an extra sanitary touch. With its E-Z open fasteners, the door permits quick entry to the milk and cheese cooler.

Modern Dairy Combines Sanitation and Efficiency with JAMISON Metal-Clad Doors

As the largest distributor of dairy products in the Des Moines area, the Anderson-Erickson Dairy Co. uses the most modern facilities to safeguard product purity and step up operating efficiency. The Jamison Metal-Clad Doors used on cold storage rooms fit right into this scheme. They clean easily for maximum sanitation . . maintain a tight seal for refrigeration economy . . . and offer a sparkling beauty that has sales-building value.

There's a Jamison Cold Storage Door to meet your requirements, too. Consult your architect or write to JAMISON COLD STORAGE DOOR CO., HAGERSTOWN, MARYLAND, U.S.A.

Tight Seal Results in Refrigeration Economy. The Jamison Doors permit close control of storage temperatures.

JAMISON
HAGERSTOWN, MARYLAND, U. S. A.

More JAMISON Doors are used by *more* people than any other Cold Storage Door in the world.

A. F. OF L. SEEKS TO ORGANIZE OHIO FARMERS

By Suzana Winer

ONCE AGAIN an effort is being made by a labor union to organize farmers. In August an invitation was extended to dairy farmers in northeastern Ohio to join the A. F. of L. Milk Drivers Union of Cleveland. "Present producer organizations are not the answer to the price question," said Russell M. Elmer, president of the local extending the invitation. Mr. Elmer urged the farmers to set up their own committee to negotiate a milk price with Cleveland handlers.

Membership would be on a non-dues-paying basis until the union brings about an increase in the price of producers' milk, he announced.

Four hundred Ashtabula County dairymen gathered in Jefferson, Ohio to hear Elmer. Joseph N. Brown, temporary chairman of an organizing committee, presented cost figures cited in a letter from Ohio State University. According to the letter, the cost of producing 3.5% butterfat milk was $4.68 per hundredweight, in July, while producers were paid only $3.78.

Brown became interested in the union's proposal after attending the July meeting of the Milk Producers Federation of Cleveland when the Federation negotiated with milk dealers on prices, and at which time he felt that the Federation was reluctant to press for more money.

The Ashtabula group will be known as Local 336-B of the Teamsters Union, to which the Milk Drivers Union belongs.

Two other meetings have since been held, one at North Eaton and one at Dalton, Ohio. At the Dalton meeting, 250 farmers from Wayne, Stark, Ashland, and Holmes counties heard Mr. Elmer announce an organizing goal of 35% to 40% of the producers in the state in order to negotiate properly. The union head also said that if the drive were successful, each farmer would be given a production quota which he could not exceed.

Producers in favor of the union believe that organizing will bring them the higher prices they want without the necessity of calling a milk strike. "We know from experience," Brown asserted, "that when people organize, the opposition starts to give them what they want."

A sharply differing opinion was expressed by E. A. Spafford, president of the Milk Producers Federation of Cleveland, who feels that the union plan will not work.

"We've got a certain amount of milk to sell. What do you do with more milk than the consumer wants?" he asked. He described several projects the Federation has planned to improve the milk marketing situation. One is an incentive plan, paying a bonus to producers who maintain even production throughout the year. Another idea is to increase the Cleveland marketing area in size, necessitating an amendment of the federal order.

Producers are faced with the problem of an increase in producer milk price being passed on to the consumer, resulting in a drop in consumption and a further increase in the milk surplus.

Furthermore, Cleveland dealers must meet competition from the Lawson Milk Co. of Akron, which does not deliver milk to homes but sells it in gallon jugs in its own stores, at a considerable saving to the customer. The Lawson Company has expanded rapidly and has established a chain of dairy stores in Cleveland suburbs.

If Cleveland dealers raise their retail price to give dairy farmers more money, they would certainly lose even more of their business to Lawson.

One reason for the price advantage Lawson enjoys is the refusal of the Milk Drivers Union itself to deliver milk to the home in gallon containers, thus putting the Cleveland dealers at a disadvantage in meeting the competition.

in which no strike has occurred in 20 or more years of negotiating. San Francisco is one of these, although the record was almost spoiled a year ago. Twice during the summer, after the contract between 22 dealers and the I B Teamsters union had ended on April 1st, the employers and union leaders had agreed upon terms which the union membership refused to ratify.

With 1,200 workers involved, the main issue was how much the employers must pay into a health and welfare fund in addition to the increase in wages of $1 per day (five days workweek). The contract finally signed ran for two years, to give the industry some time to adjust itself to such drastic changes as were involved. During its life, the companies are permitted to try out No-Sunday operations where they feel it can be done to offset the higher home delivery labor costs.

Cleveland, Ohio's milk industry has an enviable period of peaceful negotiations. But both the dealers and union officials will tell you they have had some troublesome experiences in trying to keep away from strikes. There are ambitious elements in any large union membership that try to harass the local's leaders who urge caution. This is more frequently the cause for stiff union demands than any other.

It is evident that the dairy industry cannot expect a "freezing" of wage levels in an economy where they are advancing. Nor can there be a brake on either wages or fringe benefit increases when both major political parties seem bent upon promising more favorable conditions for labor, not only to get votes but as a method of stimulating buying power.

Reductions in the rates of compensation in the Detroit milk industry this year have come partly from competition between the Teamsters union and the CIO Dairy Workers local, but largely because the market itself has had economic reverses. The drop in "take home pay" of the milk routemen in Detroit is at the cost of substantial reduction in dealers' income through price reductions, reflected in lower commissions. This same type of reduction is not unusual, on the contrary it is inherent in a commission plan with a lower guarantee than most men expect to earn. For many years, this type of plan has given the route-

(Please Turn to Page 159)

at the DAIRY SHOW...

dairy owners are convinced that—

P-38 Dacro is the right cap

The cap with all three-

Lower Cap Cost
Unmatched Plant Economy
Customer Preference

CROWN CORK & SEAL COMPANY, INC.
Dacro Sales • Baltimore 3, Maryland

CROWN

Stepped Up Schedules, Tie-in Campaigns Feature Advertising

ON A NATIONWIDE basis, according to the Milk Industry Foundation, fluid milk distributors were spending slightly under a cent out of every sales dollar for advertising in 1952. The exact figure was .84 cents. Many individual firms were spending more than this. Successful firms reported a cent and a half to two cents.

Television, radio, and newspaper advertising were the most popular mediums used. Billboards, bus cards, taxi cards, and truck posters were also widely used.

One phase of advertising and promotion, hitherto somewhat neglected, has been used fairly well during the past two years, with good results. That is food page publicity. Many dealers have reported that this type of promotion has been their best selling tool, next to the routeman.

Many excellent promotions have been built around special products, particularly cottage cheese. A campaign in Utah boosted cottage cheese sales by 85 per cent over the previous year. An Arden Farms buttermilk promotion, using standard mass media coupled with attractive point of sale material, also was very successful.

A good many firms have been employing advertising agencies while many others have been setting up their own schedules and preparing their own copy.

The outstanding advertising development in recent months has been the vastly accelerated advertising program of the American Dairy Association. This program, which offers all distributors of dairy products a remarkable opportunity for increasing the effectiveness of their advertising, is national in scope but can be readily exploited by tying in at the local level. The ADA program consists of two national television shows, "Disneyland" and the Bob Crosby show, a national radio show, Bob Hope, and consumer advertising in *Ladies Home Journal*, *Life*, and *Better Homes and Gardens*. In addition there are many services such as mats, point of sale material, etc.

One dealer in a test market reported startling increases in sales as a result of tying in with the ADA program. His monthly sales increases varied between 26 and 38 per cent.

A fundamental and spectacular feature of the work ADA is doing is the market research program. This work shows very clearly where the markets are and what type of advertising is most effective. Sample pieces of information uncovered by the studies: children under 15, constituting 25 per cent of the population are drinking 50 per cent of the fluid milk. Of those people who drink milk 20 per cent drink three glasses or more a day and account for nearly 50 per cent of total fluid milk consumed. Most of the fluid milk consumed is drunk at home.

AMERICAN DAIRY ASSOCIATION
1955 EXPANDED PROGRAM

PROPOSED ADVERTISING BUDGET ALLOCATION: $4,078,000.00

Television	$2,470,500.00
Radio	1,018,206.40
Magazine and Newspaper	401,793.60
Trade and Farm	90,000.00
Public Relations	35,000.00
Service and Material	40,000.00
Contingencies	2,500.00
Unallocated	20,000.00
Total	$4,078,000.00

PROPOSED MERCHANDISING BUDGET ALLOCATION: $165,000.00

Material: (Advertising)	
Radio Promotion, TV Promotion	$ 25,000.00
Market Test Programs:	
Milk Clinics, Miscellaneous	20,000.00
Special Campaigns:	
Product Promotions, Newspaper Ad Mat Service	25,000.00
Material: (Various)	
Reprints — Magazine Ads, Brochures and Kits, Food Promotion Mailings, Miscellaneous	50,000.00
Services:	
Salaries and Travel, Rent, Phone Prorated, Supplies and Miscellaneous	40,000.00
Meeting Exhibits:	5,000.00
Total	$ 165,000.00

The ADA budget for 1955 will approach five million dollars. This sum will be greatly amplified by tie-in programs with manufacturers and distributors of other foods such as peaches, cereals, pancakes, etc.

Another excellent piece of basic educational work has been carried on by the National Dairy Council. Most outstanding contribution recently has been the NDC diet program. This gives the dairy industry a sound, systematic dietary program built around dairy foods. Markets where the diet has been used as a sales tool have reported splendid results. Work of the National Dairy Council, however, is apt to be less spectacular than that carried on by ADA because it is a different type. Basically educational, dealing with schools, physicians, nutritionists, and other professional people, it seeks to provide these primary sources with accurate information on the nutritional properties of milk. Much of its work is corrective. For example, a recent study reported that leg pains suffered by pregnant women were caused by milk. The National Dairy Council seeks out the facts on such reports and supplies medical men with the correct information.

The rise of the Quality Chekd Dairy Products Association is also one of the significant developments during the last two years. Originally devoted to ice cream this organization has broadened its field to include other dairy products. It is composed of relatively small or medium sized companies that pool their resources in order to gain the services of professional advertising specialists. A common trade mark is used and a common advertising program is set up. About seventy firms in all parts of the nation belong.

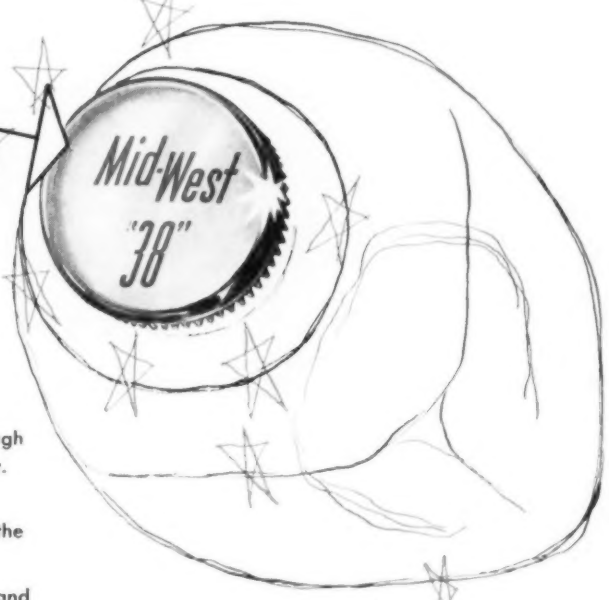
another ALUMA *Seal*® *star performer...*

Mid-West "38"

51 mm

48 mm

56 mm



star of the show for...

ECONOMY. "38" cuts dairy overhead with single capping . . . minimum bottle chippage . . . nominal cap and equipment costs.

RIGID CONSTRUCTION. Made of moisture-proof aluminum foil, laminated to pure tough paper. Mid-West "38" looks sturdy . . . is sturdy.

SANITARY PROTECTION. "38" completely covers the pouring lip. Extends down over the bottle roll. Assures a snug, tight seal.

COLORFUL APPEARANCE. Your dairy name and message can be printed in a wide selection of eye-catching colors . . . right on the foil.

CUSTOMER CONVENIENCE. It's Mid-West "38" for timesaving convenience in the home. Snap it off . . . snap it on . . . makes an excellent reseal. See your jobber or write us for full information.

WE'LL BE LOOKING FOR YOU AT THE SHOW... BOOTH K2

Come and see the complete line of quality milk bottle closures by Mid-West. AlumaSEAL . . . KuverTOP . . . PULL CAP . . . there's one that's just right for your dairy operation.

MID-WEST®

MID-WEST BOTTLE CAP CO.

BELVIDERE • ILLINOIS

Also Manufacturers of Quality Hot Drink Paper Cups and Lids

Sources of advertising material, counsel, and tie in opportunities are:

American Dairy Association
20 North Wacker Drive
Chicago 6, Ill.

National Dairy Council
111 North Canal Street
Chicago 6, Ill.

Milk Industry Foundation
1625 Eye Street N. W.
Washington, D. C.

G. P. Gundlach & Co.
1201 West 8th Street
Cincinnati 3, Ohio

Quality Chekd Dairy Products Assn.
205 West Wacker Drive
Chicago 6, Ill.

Many state associations have been or are contemplating expanded industrywide advertising and promotional programs. New Jersey Milk Industry Association, North Carolina Dairy Products Association, California Dairy Industry Advisory Board are a few of the groups in this category.

Excellent material and help can also be secured through the American Guernsey Cattle Club's Golden Guernsey Program. Write to them at Peterboro, New Hampshire.

BEVERAGES CONSUMED ON AN AVERAGE DAY BY AGE

	Total	15-24 Years	25-34 Years	35-44 Years	45-54 Years	55 Years and Over
			Per Cent			
Drank at least once on an average day						
Plain milk	50.7	70.0	55.4	45.1	42.8	44.2
Flavored milk	4.3	9.0	5.6	2.6	2.5	2.6
Milk drinks	1.4	3.2	1.4	1.3	0.9	0.6
Beer, ale	8.8	6.0	10.9	10.6	11.1	5.9
Coffee	80.6	59.3	81.2	87.5	86.3	85.5
Tea	31.6	23.4	32.1	33.6	32.6	34.9
Soft drinks	27.5	42.5	36.2	24.2	24.5	14.6
Fruit juices	41.7	43.1	42.6	45.3	40.7	37.3
None of these	1.6	2.0	1.5	0.8	2.1	1.7
Total Mentions	248.2	258.5	266.9	251.0	243.5	227.3

OCCASIONS WHEN BEVERAGES WERE CONSUMED ON AN AVERAGE DAY

	At or Before Breakfast	Between Breakfast and Lunch	At Lunch	Afternoon	At Supper	During Evening	Right Before Going to Sleep
				Per Cent			
Drank at least once on an average day							
Plain milk	16.1	5.3	26.1	5.1	25.2	5.9	7.2
Flavored milk	0.9	0.4	1.4	0.7	0.8	0.5	0.3
Milk drinks	0.1	0.1	0.1	0.3	0.2	0.6	0.1
Beer, ale	0.4	0.5	0.8	2.1	1.3	4.8	1.0
Coffee	75.4	10.7	31.1	7.2	34.4	7.0	2.2
Tea	5.1	1.5	17.2	2.5	19.0	2.0	1.1
Soft drinks	0.8	6.1	4.8	11.6	3.0	8.6	1.6
Fruit juices	37.8	2.2	1.7	1.4	1.7	1.5	0.7
None of these	5.5	73.9	20.6	70.7	20.0	70.6	85.8
Total Mentions	142.1	100.7	103.8	101.6	105.6	101.5	100.0

From the Politz Survey Made for ADA

Indications are that the dairy industry is definitely getting more advertising minded. The routeman is still the best sales instrument by far but apparently becomes much more effective when backed by a sound advertising and promotion program. Excellent work of associations, particularly the American Dairy Association, offers superb opportunity for additional advertising dividends.

To sail right through

PLANT FLOOR *clean-up*

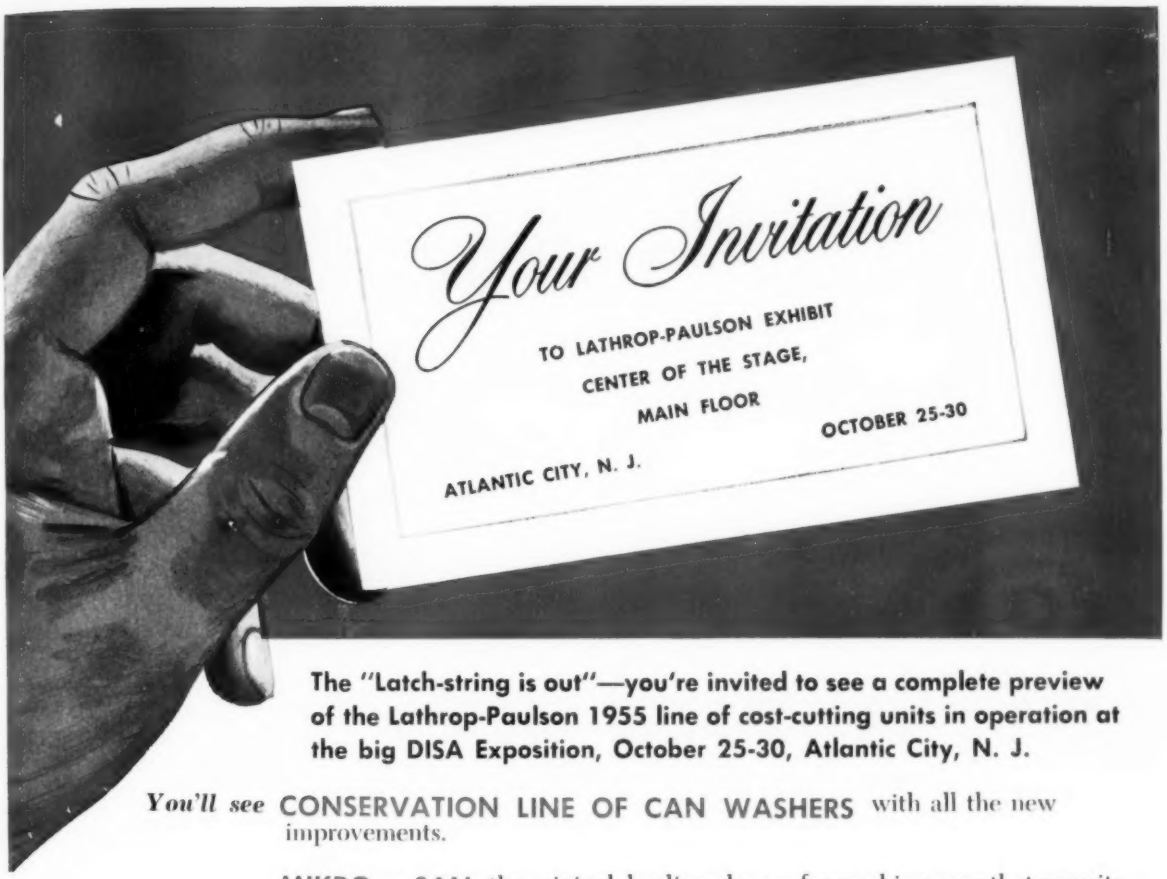
get **OXCO'S JIB**

The Jib makes quick work of scrubbing up your dairy floor—a daily job your men want to finish in a hurry. The stiff palmetto fibre removes even the most stubborn dirt; the squeegee scrapes the surface clean of water. You get long economical service from Oxco's Jib. In 10″, 12″ and 14″ block sizes. Order a supply today from your Jobber.

JIB is one of many high quality Oxco deck scrubs and dairy brushes available from your dairy supply or hardware jobber. Phone him for complete details.

OXCO BRUSHES

OX FIBRE BRUSH COMPANY, INC.
FREDERICK *Established 1884* MARYLAND



The "Latch-string is out"—you're invited to see a complete preview of the Lathrop-Paulson 1955 line of cost-cutting units in operation at the big DISA Exposition, October 25-30, Atlantic City, N. J.

You'll see **CONSERVATION LINE OF CAN WASHERS** with all the new improvements.

MIKRO - SAN the original, leading cleaner for washing cans that permits use of 225° F. water with no lime deposit.

BLENDERIZING WEIGH CANS AND RECEIVING TANKS, equipped with blender and the efficient Vacuum Sampler—stops butterfat losses, protects dairy profits.

CASE CONVEYORS AND CAN CONVEYORS with the famous L-P Ball and Socket Chain and Chain Lubricators. Also Case Spacers, Case Washers, Cold Room Conveyor Doors and Fly-Repelling Doors.

BELT CONVEYORS with the new Positive Drive that ends troublesome belt slippage under any plant condition.

BELT CONVEYORS operating on incline—also running with loose belts.

Whether you process 1,000 lbs. or 1,000,000 lbs. of milk a day into fluid milk, ice cream, butter, cheese, dry, condensed or evaporated, you'll find your trip to the L-P Stage Booth 2 (Center of the Stage) a real eye-opener for cost-saving information.

- *Conveyors*
- *Can Washers*
- *Case Washers*
- *Weigh Cans*
- *Receiving Tanks*
- *Vacuum Samplers*
- *Mikro-San—The Super Can Washer Detergent*

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2459 W. 48th St., Chicago 32, Ill. ★ 152 W. 42nd St., New York 18, New York

DIRECT FACTORY SALES AND SERVICE FROM COAST TO COAST

Court Decisions Relating To The Dairy Industry 1952-1954

A Summary of Significant Legal Activities During the Last Two Years

By ALBERT W. GRAY

Contracts

Hershey v. State, New York, February 7, 1952

Claim for damages for refusal of state institution to accept deliveries under contract denied on ground that one delivery had been of contaminated milk. (110 N.Y.S. 2d 324)

Government Control

Abbotts Dairies, Inc. v. Armstrong, New Jersey, January 18, 1954

Orders of Director of the Office of Milk Industry fixing prices held valid and enforceable. (102 Atl. 2d 372)

Branman v. Stark, U. S. Supreme Court, March 3, 1952

Provisions for the deduction of special payments to cooperative associations in fixing producers' prices in Boston, Massachusetts area held invalid. (342 U. S. 451)

Crowley's Milk Co. v. Branman, July 23, 1952

Claim for refund of money paid to Market Administrator in New York Metropolitan area denied. (198 Fed. 2d 861)

Dairy Belle, Inc. v. Freeland, Kansas, December 12, 1953

Statute prohibiting sale of ice milk held constitutional. (264 Pac. 2d 894)

Dairy Queen of Wisconsin v. McDowell, Wisconsin, April 8, 1952

Statute prohibiting sale of semi-frozen food resembling ice cream held invalid. (52 N. W. 2d 791)

Kass v. Branman, United States Supreme Court, April 30, 1952

Dismissal by District Court of action for refund of money paid Market Administrator in New York Metropolitan area reversed and remanded for new trial. (344 U. S. 891: 196 Fed. 2d 791)

Mayo v. Ar-Tik Systems, Florida, January 9, 1953

Sale of ice milk in open cups embossed "Ice Milk" a compliance with statute requiring sale in labeled packages. (62 So. 2d 408)

Opinion of Justices, New Hampshire, May 12, 1953

Legislative provision for advertising fund from fees paid by milk distributors for licenses, held to be an excise tax and unconstitutional. (96 Atl. 2d 733)

Pet Dairy Products v. State Milk Commission, Virginia, November 30, 1953

Order of State Milk Commission fixing price of milk for sale to out-of-state distributors valid and enforceable. (78 S. E. 2d 645)

Sherry v. Schomp, New Jersey, June 11, 1954

Order of Director of Office of Milk Industry prescribing delivery hours in specific marketing areas unauthorized and void. (106 Atl. 2d 350)

Sylvan Seal Milk v. Commodity Credit Corp., June 5, 1952

Claim for subsidies paid to Commodity Credit Corporation in New Jersey denied. (197 Fed. 2d 411)

Labor

Adams Dairy v. Dairy Employees Union, Missouri, May 12, 1952

Dairy distributors held independent contractors in labor dispute and not authorized to picket plant as employees. (250 S. W. 2d 481)

Durkin v. Pet Milk Co., October 20, 1953

Haulers held to be independent contractors in suit to enjoin employer for violations of Fair Labor Standards Act in payment of wages. (115 Fed. Suppl. 628)

Hartkopf v. Southland Corporation, Texas, March 11, 1953

Contract with employees against competition after termination of employment held valid and enforceable. (256 S. W. 2d 241)

Ivey v. Foremost Dairies, Inc., August 25, 1952

Claim of employees for overtime wages under Fair Labor Standards Act sustained. (106 Fed. Suppl. 793)

N.L.R.B. v. Clearfield Cheese Co., Inc., May 7, 1954

Order for reinstatement of employees modified. (213 Fed. 2d 70)

N.L.R.B. v. Falls City Creamery Co., November 10, 1953

Order against unfair labor practices by employers modified in application for enforcement. (207 Fed. 2d 820)

Licenses, Ordinances and Permits

Commonwealth v. Rivkin, Massachusetts, December 31, 1952

Ordinance against sale of ice cream on street held void. (109 N. E. 2d 838)

Creston, City of, v. Center Milk Products Co., Iowa, February 5, 1952

Operator of milk station not permitted to question validity of 21 year old zoning ordinance. (51 N. W. 2d 463)

Echelman, Application of, New York, January 27, 1954

Refusal to extend license for purchase of milk. (127 N. Y. S. 2d 287)

Flagstaff, City of, v. Associated Dairy Products Co., Arizona, March 30, 1953

Milk ordinance unauthorized as regulation of industry assumed by state. (255 Pac. 2d 191)

Goldstein, Application of, New York, March 30, 1952

Application for extension of license refused on ground of false statements. (111 N. Y. S. 2d 127)

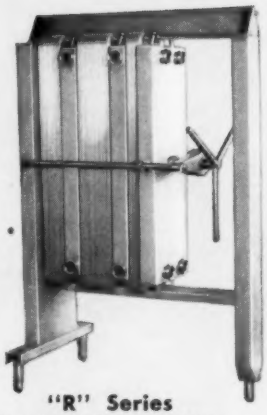
Henryetta, City of, v. Rose Lawn Dairy, Oklahoma, January 8, 1952

Ordinance requiring additional license for milk producers discriminatory and void. (239 Pac. 2d 774)

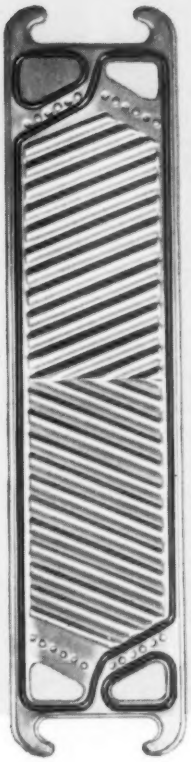
KUSEL *Dairy Equipment*

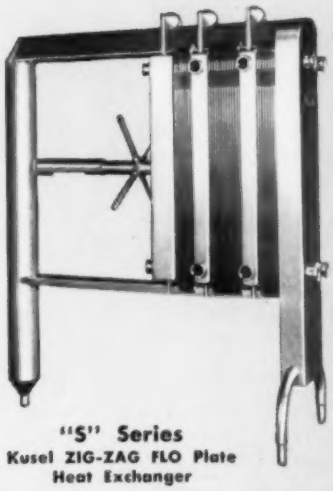
DEMONSTRATES THE VALUE OF

better design
better engineering
better construction



"R" Series
Kusel ZIG-ZAG FLO Plate Heat Exchanger





"S" Series
Kusel ZIG-ZAG FLO Plate Heat Exchanger

the First Complete

COTTAGE CHEESE MAKER

featuring . . . the Tender Heat Cheese Vat

ZIG-ZAG FLO PLATE

Notice the corrugated construction of the plates — scientifically designed to assure maximum exposure of the milk in a smooth turmoil. Heating and cooling is more uniform — more thorough — more efficient. The loose gasket problem has been eliminated . . . cleaning is fast and easy.

Kusel Equipment is designed, engineered, and manufactured by Kusel . . . complete equipment — for complete installations — for complete satisfaction.

An Invitation:

to see these units—Booth D12 at the DAIRY EXPOSITION— ATLANTIC CITY — OCTOBER 25-30

QUALITY PROVED KUSEL DAIRY EQUIPMENT

KUSEL DAIRY EQUIPMENT CO.

WATERTOWN • WISCONSIN

Otto Milk Co. v. Rose, Pennsylvania, October 5, 1953

Officials ordered to issue permit for sale of milk within city. (99 Atl. 2d 467)

Safeway Stores, Inc. v. State Board, Oregon, March 25, 1953

Refusal of Milk Market Administrator to issue license on ground that adequate service existed held unauthorized. (255 Pac. 2d 564)

Sunny Brook Farms v. Omdahl, Washington, July 1, 1953

Injunction against suspension of producers license refused on ground that producer had failed to comply with statute requiring speedy hearing. (259 Pac. 2d 383)

Williams, Application of, New York, May 13, 1953

Denial of application for permit for service of adjacent city annulled. (121 N. Y. S. 2d 830)

Patents and Trademarks

Borden Co. v. Halo Star Corp., May 27, 1954

Opposition to trademark "Star" dismissed. (101 U.S.P.Q. 371)

Jewel Tea Co. v. Kraus, July 8, 1952

Application to punish for contempt for use of word "Jewel" denied. (107 Fed. Suppl. 59)

Kraft Foods Co. v. Walther Dairy Products, et al., February 1, 1954

Injunction granted against infringement of Swiss cheese patent. (118 Fed. Suppl. 1)

Woodruff v. New States Ice Co., May 14, 1952

Claim of employee against employer for use of invention denied for lack of contract. (93 U.S.P.Q. 336)

Monopolies and Restraint of Trade

Balian Ice Cream Co. v. Arden Farms Co., April 29, 1952

Fifteen actions against dairy companies based on price reductions as violations of Clayton Act dismissed. (104 Fed. Suppl. 796)

Maola Ice Cream v. Maola Milk & Cream, North Carolina, October 14, 1953

Agreement against competition in sale of ice cream void. (77 S. E. 2d 910)

Patrizi v. McAninch, Texas, June 16, 1954

ZONING ORDINANCE DEFECTS WAIVED

A petition was filed a few months ago by the city of Creston, Iowa, to prohibit the Center Milk Products Company from operating its plant in a zoned residential area. The milk company insisted that the ordinance was void in the restriction of this area to residential use, as the ordinance not only had never been published as required by the statute but the boundaries of this zone were defined by a map that had also never been published as required by the statute. The ordinance, however, had been adopted over twenty years before.

"For twenty years the public acquiesced in and permitted the exercise of authority under this zoning ordinance," said the court. "During this time and in reliance upon the validity of the ordinance there have been changes in conditions involving existing property interests. An adjudication that the ordinance never took effect because of the failure to strictly comply with the statute requiring its publication after its adoption, would result in much confusion and loss. After such long acquiescence by the public with the results above stated no one may contend that the ordinance never took effect because of irregular publication."

City of Creston v. Center Milk Products Co., 51 N. W. 2d 463, Iowa, February 5, 1952.

Agreement for royalties restricting sale of patented machine to specified territory illegal. (102 U.S.P.Q. 44: 258 S. W. 2d 949)

United States v. Borden Co. et al., United States Supreme Court, May 17, 1954

Proceedings against several dairy companies for conspiracy to monopolize sale of fluid milk in violation of Clayton Act remanded for new trial. (74 S. Ct. 703: 111 Fed. Suppl. 562)

Sales and Use Taxes

Bowman Dairy Co. v. Lyons et al., Illinois, May 24, 1954

Tax on sales of milk to institutions forbidden. (120 N. E. 2d 1)

Broadacre Dairies, Inc. v. Evans, Tennessee, February 9, 1952

Rental of dairy machinery paid after effective date of tax statute held subject to tax. (246 S. W. 2d 78)

Evans v. Memphis Dairy Exchange, Tennessee, July 11, 1952

Sale of milk containers not taxable. (250 S. W. 2d 547)

Modern Dairy Co. v. Department of Revenue, Illinois, September 17, 1952

Taxes paid on sales to state institutions not recoverable by dealer. (108 N. E. 2d 8)

Miscellaneous

Del Rico Co. v. New Mexican, Inc., New Mexico, June 28, 1952

Claim for damages for libel denied on failure to show loss of profits. (246 Pac. 2d 206)

Du Pont, E. I., de Nemours & Co. v. Ladner, Mississippi, June 14, 1954

Manufacturer of chemical compound for use with soy beans as cattle feed, not liable for damages when product not used as directed. (73 So. 2d 249)

Eads v. Marks, California, March 19, 1952

Milk distributor not liable for injuries to child from bottle left on dwelling porch. (241 Pac. 2d 582)

Hapgood v. Dixson Co., Georgia, October 24, 1953

Contract for sale of milk containers and buttermilk containers one contract. (78 S. E. 2d 561)

Leblanc et al v. Deslandes, Vermont, May 6, 1952

Judgment for damages for misrepresentations in purchase of dairy farm set aside. (90 Atl. 2d 802)

Shapiro v. Hoddman's Dairy Co., June 7, 1952

Document declared to be a chattel mortgage and not title retaining contract. (105 Fed. Suppl. 867)

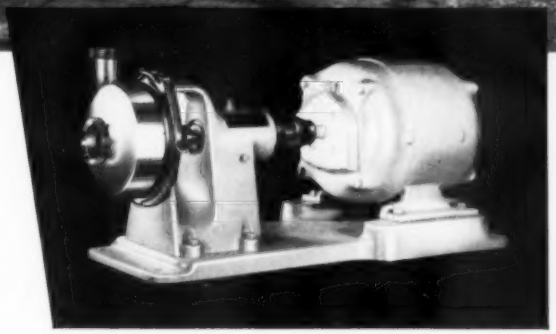
Stevenson v. Cabell's Inc., Texas, April 30, 1954

Injunction against seizure by state of rum flavored ice cream as egg nog. (267 S. W. 2d 887)

Viall, W. C., Dairy, Inc. v. Providence Journal Co., Rhode Island, June 20, 1952

Judgment for libel against newspaper reversed. (89 Atl. 2d 839)

Photo Courtesy of Dannon Milk Products Inc., Long Island City, New York



Shown above is one of the complete line of Tri-Clover Sanitary Centrifugal Pumps designed especially for use in the Dairy and Food Industries. These modern, high efficiency units are backed by years of specialized experience. For full details, send for the new Tri-Clover Sanitary Pump Catalog.

"Visit Tri-Clover Booth No. 320 at the 1954 Dairy Industries Exposition"

Shown on the job in *natural, sparkling clean condition* is a typical modern dairy conveying line complete with Tri-Clover Sanitary Stainless Steel Valves, Fittings, Tubing and a Sanitary Centrifugal Pump. This is the type of Tri-Clover set-up that makes it easy for the dairy industry to maintain high quality and meet exacting 3A Standards. This is the type of conveying line that makes it easy for you in the food and beverage industries to meet *your* local sanitary codes.

Features like sweep ell construction—clean cut, accurate threads—and highest quality materials and fabrication—these are the features that you need and want for your replacement or new line needs. These are the features that you get in a Tri-Clover installation!

And another important thing, Tri-Clover is equipped to handle your complete job from "tee to angle cock—from centrifugal pump to magnetic trap." *You can depend on Tri-Clover as your one reliable source for all types of sanitary fittings, valves, pumps, tubing or allied specialties.*

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THE Complete LINE

P354

14,000 Farm Tanks In Operation

Number Has Doubled in Last Twelve Months With Rate of Installation Still Accelerating—Premiums Play Important Role

A CONSTANTLY accelerating rate of growth has been the outstanding feature of bulk milk handling development over the last two years. According to a census taken by the *American Milk Review* in 1953, there were 6,550 tanks in operation in September of last year. On the basis of reports from forty-eight states in 1954 the number appears to be just about doubled.

This is a tremendous rate of growth when one considers that installations from September 1953 to September 1954 equalled the total of all previous installations.

California leads the nation with approximately 4,000 farm tanks in operation. Washington is second with 2,000, and Wisconsin third with 800. The Washington record is particularly remarkable inasmuch as there were no tanks in the state as recently as 1951.

The story in some states is breathtaking. Illinois went from 50 tanks in 1953 to 600 in 1954. Arizona went from 180 tanks to 400. Iowa had 50 tanks in 1953, 300 in 1954. Tennessee, with 12 in 1953, reports 400 in 1954. Colorado went from none in 1953 to 215 in 1954.

Reports of firms going 100 per cent bulk method are increasing. It is quite apparent that once a milk company goes in for bulk handling it sets its sights on a complete bulk operation. Several firms have accomplished the task. Most firms, however, are working toward the goal gradually. Most spectacular reports comes from a co-operative in the mid-west that expects to install 4,000 tanks in the next two years.

The problem of the small producer is still a big one. Every other day pick-up has helped in many areas but has not solved the problem. Glen T. Nelson, Oregon State College authority, says that it costs a farmer with 10 cows a little over $152 a year to handle milk in a farm tank compared to $45 a year for handling milk in cans. However, savings in hauling costs alone amount to a difference of $104 with the bulk method. Additional factors add to this total bringing a net of about $103 a year in favor of the tank. The conclusion is that a farm tank is practical for a farmer with as few as 10 cows. Mr. Nelson's discussion of this subject will be printed in the November issue of the *American Milk Review*.

Farm Tank Numbers

State	1953	1954
Alabama	0	3
Arizona	180	400
Arkansas	0	0
California	3,200	4,000
Colorado	0	215
Connecticut	55	161
Delaware	3	25
Florida	24	75[1]
Georgia	6	100
Idaho	12	86
Illinois	50	600
Indiana	14	200
Iowa	50	300
Kansas	0	100
Kentucky	0	6
Louisiana	1	1
Maine	0	105
Maryland	185	320
Massachusetts	75-100	132
Michigan	50	300
Minnesota	125-150	500
Mississippi	0	25
Missouri	0	75
Montana	6	65
Nebraska	1	2
Nevada	59	80
New Hampshire	6	75
New Jersey	55	250
New Mexico	6	15
New York	160	517
North Carolina	10	5-10
North Dakota	0	0
Ohio	72	250
Oklahoma	6	40
Oregon	160	479
Pennsylvania	250	500
Rhode Island	0	0
South Carolina	41	120
South Dakota	0	6
Tennessee	12	400
Texas	18-25	500
Utah	50	200
Vermont	6	102
Virginia	150	300
Washington	1,000	2,000
West Viirginia	2	2
Wisconsin	450	800
Wyoming	0	6
Total	6,550	14,448

[1]The figure 75 represents only conventional farm tanks. Many large Florida dairy farms have their own tank trucks and use them as holding tanks. There are an estimated 100 tank trucks used in this manner.

Premiums are a matter of lively debate among producers and milk distributors. In the first place the term "premium" is very loosely used. In some areas it is used to describe the difference between the price paid for tank milk and the price paid for milk shipped in cans. In other places it is used to describe the savings in hauling costs. Sometimes it is a true premium paid for milk produced in tanks and does not include savings in hauling.

Of the forty-eight states reporting in our most recent survey only six reported premiums. Highest premium reported was 30 cents a hundredweight. Most common practice was a premium of 10 to 15 cents a hundred.

The question is an important one, one that must be faced. It has been the source of considerable difficulty in a number of markets and has even found its way into hearings on federal orders. It is our opinion that more than a little of the trouble comes from a failure to define just exactly what is meant by the term "premium." It doesn't matter much that the definition may vary from market to market so long as people involved in the problem understand the definition.

Twenty states reported specific health department regulations or recommendations governing the bulk method of handling milk. They vary quite substantially in extent of detail but are remarkably similar in general outline and concept. Specifications concerning the tank, the milk house, the tank truck, methods of cleaning, and the truck driver are the most prominent. Emphasis on the truck driver continues in many states where he must be a licensed weigher and sampler.

Weight of milk and payment continues to be made on the basis of measurements made by the truck driver with a measuring stick calibrated for each individual tank. Although a Committee appointed by the National Council of Weights and Measures Officials voiced rather strong objections to translating the volumetric measure arrived at with the measuring stick into terms of pounds, the practice continues to be

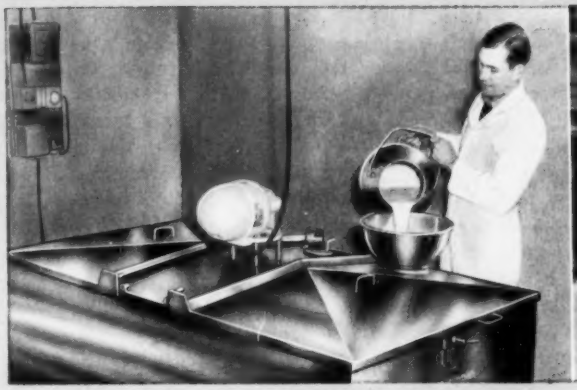
(Please Turn to Page 158)

J. W. Massengill observing the milk being pumped into the Mojonnier Bulk Tanker.

PINEMONT FARMS

Convert 100% to BULK...

with Mojonnier BULK COOLERS and PICK-UP TANKER



J. W. Massengill pouring milk into his shiny Mojonnier stainless steel Bulk Cooler. The milk is immediately cooled to 35°F.

View of Pinemont Dairy Bulk Tanker enroute.

Last year Pinemont Farms, Bristol, Va., decided to take advantage of the many economies of bulk milk. After investigating available equipment on the market they selected a Mojonnier Two-Compartment Farm Pick-Up Tanker and 100% Mojonnier Bulk Coolers. Here are some reasons why:

All stainless steel construction. It was felt that under corrosive milkhouse conditions, Mojonnier all stainless steel construction would be the most economical in the long run.

Sturdy structural design incorporating a method for bonding the refrigeration coils proven in milk plants for over 20 years.

Milk cooled to 34 to 36°F. soon after the end of the milking period, at the lowest possible power cost.

The Mojonnier Tanker selection was based on engineering design, including the use of a 70 GPM simple centrifugal pump for picking up the milk. This pump is also utilized to agitate the milk prior to unloading at the dairy.

If you are considering a conversion to bulk milk, it will pay to get the full story on Mojonnier Bulk Coolers and Bulk Tankers. Bulletin 290 will be gladly sent upon request. Write today to: MOJONNIER BROS. CO.

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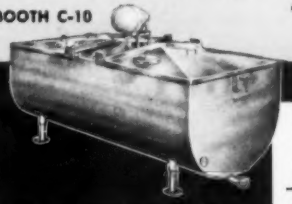
See the Full Line of Quality MOJONNIER EQUIPMENT AT BOOTH C-10 AT THE DAIRY SHOW, Oct. 25-30, Atlantic City, N. J.



Mojonnier BULK MILK SYSTEM

Bulk Coolers 60 to 1,500 Gallons

Pick-Up Tankers 500 to 3,000 Gallons

XUM

Rise of Multiple Quart Containers Outstanding Industry Development

THE CONTINUED growth of paper containers and the greatly increased use of gallons and half gallons in both paper and glass have been the outstanding developments in the packaging of fluid milk during the last two years. According to the paper container industry, an estimated 10,500,000,000 paper containers of all makes and sizes will be used in 1954. Reports from both paper and glass container manufacturers indicate that about 14 per cent of all milk sold in the United States in 1954 will be in gallons and half gallons with half gallons the most popular size of the two.

Both of these trends in containers have been influenced by and have had a profound influence upon price. The paper quart has become the most popular store package while the glass quart remains the most popular retail package. The question of proper pricing has consequently been complicated by the difference between retail and store milk.

The August 1954 Fluid Milk and Cream Report of the United States Department of Agriculture shows 70 markets having a price differential in favor of store milk and 58 with no differential. Of the 70 markets with a price differential, 31 gave a price range for store milk in which the top price is the same as the retail home delivery price. In seven markets the store price was higher than the retail home delivery price. The report lists 19 markets in which the store price is higher for paper than for glass and 15 retail markets where a differential in favor of glass exists.

The differential between paper and glass is a fairly accurate reflection of the difference of opinion that exists on the subject. One school of thought holds that glass is cheaper and consequently there should be a differential. Another school believes that, although initial costs are greater for paper, there are savings in processing and handling which make up the difference and, therefore, there should be no differential.

Many attempts to nail down the actual costs have been made. Even here, however, differences show up. A study of 14 mid-western milk plants made in 1952 by the Edward McClain Company placed the cost as follows:

Glass packaging	**.01131 cents per unit**
Paper packaging	**.023357 cents per unit**

At a formal panel discussion of exclusive paper operations held in early 1954, the four dealer members of the panel were unanimous in declaring that their profits increased as a result of the exclusive paper operation. They were not able to give a breakdown of their operation but were primarly expressing opinion. These two examples show quite clearly the danger of making sweeping generalizations on the question.

Container costs in general have shown a definite increase over a period of years. The Milk Industry Foundation reports the following container costs:

1941	**.0376c**
1944	**.0322c**
1947	**.0305c**
1949	**.0400c**
1952	**.0505c**

These figures were in terms of per dollar of net trade sales.

Paper has had a sharp effect on methods of distribution. Its practicality as a store package has been a major factor in the growth of stores as a medium for distributing milk. It has had a collateral influence in extending marketing areas. Sheldon Williams in a study of milk distribution in Illinois reports that 50 out of 74 Illinois plants using paper containers sell milk outside their local market areas. Hugh L. Cook in a similar study in a Wisconsin report that 41 Wisconsin dealers studied were distributing half of their paper packaged milk outside the local market.

The rise in the volume of milk through stores created a competitive condition and a price condition that produced the recent widespread interest in large sized containers. The usual pricing pattern gives the consumer a substantial price advantage with the multiple quart containers over single quarts. Prices range 1 to 3 cents lower on half gallons, 4 to 15 cents on gallons.

Comparative prices out of stores, August 1954, were as follows:

	Quarts	Half Gallons	Gallons
Chicago	**20-23**	**39**	**73**
Fort Wayne	**18-20**	**32-34**	**68**
Cleveland	**19**	**37**	**58**
Memphis	**20-21**	**37-39**	**70-76**
Milwaukee	**18-19**	**35-37**	**65**

CHICAGO MILK CONTAINER COMPARISON BY SIZES
(Fluid Milk Sales During April for Each Year)

	1949 Per Cent	1950 Per Cent	1951 Per Cent	1952 Per Cent	1953 Per Cent
Gallons	**11.3**	**12.7**	**17.4**	**21.9**	**25.0**
Half Gallons	**23.2**	**34.5**	**35.7**	**35.9**	**36.9**
Quarts	**58.8**	**46.4**	**40.0**	**35.9**	**31.6**
Small Sizes	**6.7**	**6.4**	**6.9**	**6.7**	**6.5**

MILWAUKEE MARKET STATISTICS

Month and Year	Gallons Per Cent	½ Gallons Per Cent	Quarts Per Cent	1/3 Quarts Per Cent
January, 1951	**23.1**	**31.4**	**39.3**	**6.2**
July, 1951	**22.2**	**35.3**	**37.2**	**5.3**
March, 1952	**18.3**	**46.9**	**28.1**	**6.7**
December, 1952	**17.0**	**51.8**	**25.4**	**5.8**

DETROIT MARKETING AREA STATISTICS

	½ Gallons	Quarts	Pints	½ Pints
Regular	**722,904**	**6,208,885**	**1,476,665**	**2,624,396**
Homo and Vitamin D	**3,119,287**	**21,798,064**	**227,356**	**4,465,830**

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Representatives in Principal Cities

THATCHER GLASS MILK BOTTLES

VISIT BOOTH E14 AT THE DAIRY INDUSTRIES EXPOSITION, OCTOBER 25-30, AT ATLANTIC CITY

Glass gallons and half gallons usually follow a paper half gallon in a market. They are used as a competitive weapon, quite often by smaller dealers, who must meet the paper half gallon but do not wish to invest in a paper machine. The glass gallons generally make their appearance in the suburbs and gradually work their way into the general market.

Deposits On Larger Size

There does not appear to be much of a problem with deposits on the larger sized glass containers. Indeed in some markets the deposit is greater than the cost of the container. Apparently the homemaker is willing to pay the deposit providing she can get it back in lower priced milk. Where this practice is followed dealers have almost no container cost. That is one reason why they are able to sell for a lower price.

In summary:

1. Paper containers continue to grow. 750 million in 1940—estimated 10.5 billion in 1954.
2. Paper most popular in stores, glass on retail.
3. 13.5 billion milk bottle closures shipped in 1953 indicating the volume of glass used.
4. About 1.3 billion gallons and half gallons in both paper and glass used last year. (1953)
5. Price differentials in favor of stores continue although in a majority of markets the differential is very slight or does not exist.
6. Price differential between sizes of containers is very important factor in determining consumer preference.
7. Despite economies of an exclusive operation in either paper or glass, majority of milk distributors have both containers.
8. Of 138 markets reporting in the USDA's August Fluid Milk and Cream report, 43 markets indicated a differential between 2 single quarts and half gallons in stores. Differential ranged from ½ cent to 7 cents.
9. 76 markets reported half gallons in use.
10. 21 markets reported prices on gallons with a range of 54 cents in Canton, Ohio to 95 cents in Mobile, Alabama.

DETROIT ROUTEMEN ASK FOR LOWER PRICE INSTEAD OF PAY RAISE

APPROXIMATELY 60,000 families, representing 20 per cent of Detroit's home delivered milk market, benefited when their milkmen, in an unprecedented action in August, voted to reject a $12-a-week raise provided that milk distributors would reduce the price of milk.

The six A. F. of L. dairies affected by the vote put the proposal into operation by means of a substantial quantity discount plan. Families served by these firms will pay 18 cents a quart instead of 21 cents for all purchases over 30 quarts per month. For purchases of 90 or more quarts per month the 3 cent discount will apply to all milk bought.

Brunson Gilbert, president of the Milk Drivers and Dairy Employees Local No. 155 A. F. of L., told union members, "The retail milk business has been on the way out since 1945. If we want to keep our jobs we have to do something to improve it."

Gilbert told the deliverymen that there are only 2,700 milkmen in Chicago today, as opposed to 8,300 a few years ago, while in New York there is practically no home-delivered milk. By turning down the raise, the routemen would enable dairies to reduce prices and both volume and per capita consumption would increase, the union head said.

Considerable unemployment in Detroit and the elimination of factory overtime have forced the consumers to tighten their budgets. Lower milk prices would be a boon to the Detroit housewife.

Commissions on sales will range from 15 to 18 per cent depending on the price of milk, Gilbert told the men. "As the price of milk goes up, the commissions will be reduced, and as the price drops the commissions will rise," he said.

Members voted unanimously to approve this proposal.

Shortly thereafter some 1,500 CIO milk deliverymen, representing 23 Detroit dairies, agreed to a weekly cut in retail commissions ranging from $6 to $10 to enable CIO dairies to make similar price reductions. These drivers are members of Local 83, United Dairy Workers (CIO).

A union spokesman said that most of the dairies employing CIO drivers already had a modified rebate plan allowing a 2 cent rebate for customers buying more than 90 quarts a month. Those who buy 30 to 90 quarts receive a 1 cent rebate on all quarts over 30.

The action by both unions is an attempt to regain business lost to retail stores.

Consumers have been paying 21 cents a quart for home-delivered milk in Detroit, as opposed to 19-21 cents a quart in the stores, according to the USDA Fluid Milk and Cream Report for August, 1954.

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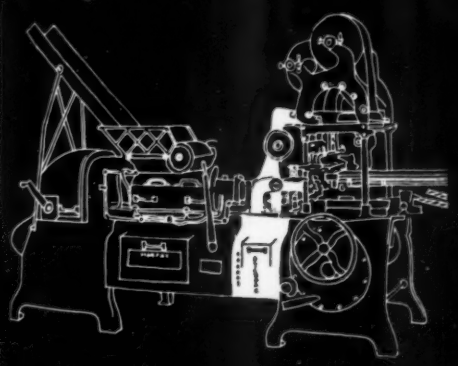

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Developments in

Federal Milk Marketing Orders 1952-1954

By S. KENT CHRISTENSEN
Assistant Professor of Marketing
Cornell University

EIGHT NEW federal milk marketing orders were established during the period 1952 to September 1, 1954. Markets brought under federal regulation during this period include the following:

Markets	Effective Date
San Antonio, Tex.	May 1, 1952
Fort Smith, Ark.	August 1, 1952
Sioux Falls-Mitchell, S. Dak	August 1, 1952
Central West Texas	November 1, 1952
Stark County, O	November 1, 1952
Muskegon, Mich.	June 1, 1953
Southwest Kansas	June 1, 1954
Black Hills Area, S. Dak.	July 1, 1954

In addition, hearings have been held to consider federal orders for Akron, Ohio; Central Mississippi; the Appalachian region (parts of Virginia, Kentucky and Tennessee); and Pittsburgh, Pa. Marketing orders are being talked about for Northern Iowa (26-county area) and for Northern New Jersey.

The proposed marketing order for Akron, Ohio awaits only the approval of producers, who are to vote upon the order in the near future. Previously proposed orders for Akron and Central Mississippi failed of adoption in September 1950 and June 1953, respectively, because of insufficient producer support.

The sharp drop in the number of new federal orders issued in 1953 and to date in 1954 coincided with the change in administration at the federal level. However, there is little evidence to support the idea that the sharp decrease in the number of new orders is the result of a different attitude toward federal milk marketing orders by the new administration. The slowdown appears rather to be a result of local differences of opinion among producers in those areas where federal orders are under consideration and to a satiation in the demand for new orders.

Greater uniformity of order provisions in adjacent markets, consolidation of orders

In general, it appears that in the last three or four years, more consideration has been given to the intercompetitive relationships between regulated markets. In several areas, orders for adjacent markets have been revised so as to be very similar in nature. Amendments to groups of orders in a region appears to becoming an accepted policy. In recent years, for example, joint hearings have been held to consider amendment to the five federal orders in the New England area, and the several orders are generally amended simultaneously. The Chicago, Milwaukee and South Bend-LaPorte marketing orders, as well as the orders for other regulated markets near Chicago, have many similarities. Hearings to consider changes in these orders are usually coordinated rather closely as are proposed amendments submitted to producers for their approval. The same is true, but perhaps to a lesser extent, of the regulated markets around Cleveland, Ohio. Intermarket price relationships, however, continue to be an important problem in many areas.

The issuance of new orders for several markets in the proximity of markets already under regulation has intensified the need for greater consideration of intermarket price relationships. The problem has been solved in some instances by combining under one order the marketing areas previously covered by two separate orders. The Chicago and Suburban Chicago marketing orders were combined in July 1951, and the Tulsa and Muskogee, Okla. orders were combined in August 1953. Other combinations of a similar nature can be expected sometime in the future.

Several of the marketing orders issued in the last three years and some of the proposed orders under consideration cover extensive geographic areas. The North Texas, Central West Texas and Southwest Kansas orders; and the proposed orders for Central Mississippi and Northern Iowa are examples. Other orders have been amended to include substantially larger areas in the market. The Omaha-Council Bluffs order was amended to include Lincoln, Neb.; the Wichita, Knoxville and Chicago regulated marketing areas also have been expanded in the last three years to include additional surrounding areas. Producers and handlers in other markets (including Lima and Toledo, Ohio; Memphis, Tenn.; Springfield, Mo.; and New England markets) have proposed order amendments during the last year or two, calling for the expansion of the areas regulated by their order. This trend can be expected to continue as markets expand because of population increases and the movement toward rural-urban living. Also increased mechanization of dairy plants, more extensive use of paper containers, improvements in transportation, and a tendency toward abolition of health department barriers, have worked in the direction of larger pasteurizing plants and more extensive distribution areas.

Supply-demand adjustment

Another very important development in the federal milk order programs during the last three years has been the introduction of a supply-demand adjustment factor in many of the formulas for determining the price of Class I, and in some instances Class

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II, milk. The supply-demand adjustment factor recognizes the need for keeping milk supplies in closer balance with fluid sales. In several of the orders, however, the weight given to this factor is relatively small. In other of the orders, the supply-demand adjustment is in part a seasonal adjustment factor. The supply-demand adjustment factor was discontinued in the Chicago order, for example, when a base surplus plan was adopted recently.

Seasonal adjustment plans

A marked swing to the base and surplus plan of paying producers in fluid milk markets has been in evidence in late years. In May 1952, there were 13 federal order markets with base-rating plans, 10 of which had been adopted within a 2-to-3 year period. The new order issued for Muskegon, Mich. in 1953 provided for a base-rating plan, and the Chicago, South Bend-LaPorte orders were amended recently to provide for a similar plan. In the Minneapolis-St. Paul market, a base-rating plan adopted on a voluntary basis by the Twin City Milk Producers' Association, went into full effect in 1952.

In addition, the U. S. Department of Agriculture (in August 1954) recommended base surplus plans for the Kansas City, Mo. and Topeka, Kan. markets.

The base rating plans in the Puget Sound, Neosho Valley, Wichita and Detroit orders were modified to some extent in 1953 and 1954.

A few additional markets have recently adopted fall incentive plants (Louisville). Among these are Southwest Kansas and the Dayton-Springfield, Ohio markets.

Cooperative payments

The legality of cooperative payments has been a court issue for many years. In the Stark case, decided by the U. S. Supreme Court early in 1952, cooperative payments were declared illegal as contained in the Boston order. Shortly thereafter the cooperative payment provision in the New York order was challenged by a small group of independent producers and the court ordered the Market Administrator to withhold such payments to cooperatives pending litigation.

In the meantime, a committee was appointed by the Secretary of Agriculture and the New York Commissioner of Agriculture and Markets to make a thoroughgoing study of the activities performed by cooperatives under a marketing order for which they may be entitled to receive compensation from pool funds. In December 1953, the New York order was amended to embody the recommendation of this committee.

On July 8, 1954, Judge Casper Platt of the U. S. District Court for the District of Columbia (in the case involving cooperative payments under the New York order) rendered a very firm decision in favor of cooperative payments. This case will undoubtedly be appealed to the higher courts. The final decision will have an important bearing upon all the orders containing provisions for cooperative payments.

Impact of bulk-tank pickup on order provisions

In at least six federally regulated markets (the Puget Sound and the five regulated New England markets), amendments to orders have been proposed and/or adopted because of the impact of bulk-tank pickup at the farm. The amendments have to do with: (1) premiums for milk shipped in bulk tanks, and (2) transportation or location differentials. Proposals to amend additional federal orders can be expected because of this innovation.

Committee appointed to study federal orders — compensatory payments

In the spring of 1953, a 14-man dairy technical committee was named by the Secretary of Agriculture to study and review the federal milk marketing order program to determine whether orders in general or particular provision of orders are in the "public interest." No report has been issued by this committee, but it is reported that the central issue has boiled down to the question of whether compensatory payments on outside milk are a desirable and necessary feature of marketing orders–particularly orders providing for market-wide equalization. The Andresen amendment, which was introduced in committee during the last session of Congress, would forbid the inclusion in marketing orders of the provision for compensatory payments.

The U. S. Supreme Court in December 1952 refused to review a lower court decision which held invalid compensatory payments in the New York order. The New York order was revised, however, and a compensatory payment provision continues to function in that order, as well as in several others. In addition, more orders have been amended to provide for such payments. The proponents of compensatory payments logically argue that it is impossible to operate a market-wide pool successfuly without provisions for compensatory payments.

Do You Know the Answers to these Three Important Questions?

1. What is the annual loss of dairy products throughout the country due to leaky joints in sanitary lines?
2. What is the annual loss of dairy equipment throughout the country due to improper protection for the equipment?
3. What is the annual loss of dairy products throughout the country due to improper sterilization of equipment?

YOU CAN OBTAIN THE ANSWERS AND THE REMEDIES TO OVERCOME THESE LOSSES BY VISITING

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Causes Of Corrosion In Dairy Plant Equipment

By R. F. HOLLAND and J. C. WHITE

RUSTING OF STAINLESS STEEL

QUESTION—We have a nearly new stainless steel tank which shows rust spots. The rust forms along the vertical corners as well as near the edges of the flat bottom. What causes this rusting and how can we prevent it?

—Q. S., Wisconsin.

ANSWER—There are many kinds of stainless steel used in dairy equipment. The bulk of dairy eqaipment is made from 18-8 stainless steel. This alloy, 18 per cent chromium and 8 per cent nickel, resists corrosion when properly fabricated. It does not affect the flavor of milk or dairy products and it washes easily without developing rough surfaces. The more it is used the harder it gets.

When properly fabricated, 18-8 stainless steel resists the corrosive action of dairy products and cleaning solutions. Brine, however, will attack ordinary stainless steels regardless of fabrication.

Welds Will Bear Watching

When stainless steel is welded to make dairy equipment, it must be done carefully. When the steel is heated at the weld point, there will be local heating of a small area around the joint. Some of this adjacent metal is heated mildly for a long enough period so that a crystallization takes place near, but not exactly at the weld. At these points the steel will not be nearly so resistant to corrosion.

We suspect that the tank you mention was fabricated under conditions where the welds were not annealed after welding. Properly annealing prevents the crystallization and leaves a joint which will not readily corrode.

Brine left in contact with stainless steel causes pitting. Salts must be flushed from stainless steel surfaces as soon as possible. High concentrations of chlorine will attack stainless steels when exposure time is long. Where steel surfaces are to be exposed to corrosive conditions, it is desirable to specify a highly corrosion resistant alloy. Where severely worked metal, such as spun parts, is subject to corrosive conditions the material should either be annealed or an alloy resistant to the conditions must be selected.

The rusting you describe could have been prevented by proper welding techniques. In the plant you can minimize the rusting by making sure that the surfaces are cleaned promptly and thoroughly so that no particles are left to speed corrosion. Extreme care should be exercised to remove detergents and chlorine solutions.

Where the surface shows minute pitting we would not recommend that it be buffed smooth. Buffing often will raise the surface temperature of the metal to a point which encourages crystallization of carbides. This leaves a surface which is very subject to corrosion.

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Fair Trade Practices Tried With Varying Success

THE TWO YEARS from 1952 to 1954 have seen several formal codes of fair trade practices adopted by milk and ice cream distributors in various markets. Most notable and possibly the most effective of these codes was the one written into a court decision by Federal Judge Igoe in Chicago late in 1952.

Fair trade codes have invariably grown out of highly competitive situations in which discounts, rebates, sales inducements such as signs, cabinets, and display facilities have been offered. The degree of intensity of the competitive relationships have usually been the factors that determined the enthusiasm with which the drive for a code was pushed. Closely allied with fair trade codes in many cases have been systems of retail price fixing.

Industry attempts to set up such codes independent of law enforcement agencies have been hampered by a fear of anti-trust legislation. As a result the only codes that have been publicly announced have been those that have legal standing. Examples are the Chicago code and the New Jersey regulations governing dealer selling practices.

Two measures, one in Wisconsin and one in Alabama, presented to public agencies for action have been rejected. The Wisconsin code, covering the Milwaukee market, was rejected by the State Department of Agriculture on the grounds that the type of code sought was one that required legislative action. The Alabama code was presented to the State Milk Commission but no action was taken because the Board felt that the problem belonged to the industry rather than the Milk Control Board.

The New Jersey code, promulgated by the State Office of Milk Industry is aimed at stopping the practice of discounts. Dealers are required to sign an affidavit to the effect that they have not granted discounts. Despite claims of 90 per cent compliance by the Office of Milk Industry the program has reached a point of crisis. Many dealers, particularly those in areas where out of state competition must be faced, have refused to sign. They argue that if they do not give discounts they will lose their business to the competition which, being out of state is not subject to the jurisdiction of OMI. If they do give discounts they are in violation of OMI regulations. If they sign the affidavit and still give discounts they are likely to be prosecuted on charges of perjury. The net result is a confused and critical situation.

General principles on which successful codes have been erected appear to be:

1. The code must be realistic. It must not attempt to achieve that which it is unreasonable to believe can be achieved.
2. It must take into consideration the realities of the particular market.
3. It must have strong industry support and strong law enforcement support.
4. Voluntary codes adopted by industry groups must avoid anti-trust laws and must have complete industry support. These voluntary codes can be effective but usually are little more than gestures.

The Chicago code, came as the result of a 15 million dollar damage suit brought by the Dean Milk Company against seven rival concerns. The suit was settled by an award of $1,225,000 damages to the Dean Milk Company and the signing of a consent decree by all eight companies for an injunction providing in detail what the milk companies may or may not do under the U. S. antitrust statutes. Although it is clear that the firms which signed the consent decree are bound by the code, not so clear is the relationship of other firms in the same market to the code. The issue will presumably be settled in a short time by a court decision. One of the consent decree companies recently brought suit against a non-signing company charging that the non-signer had violated one or more provisions of the code.

The provisions of the Chicago code are as follows:

They shall not enter into or carry out any agreement, arrangement, or understanding with any distributor or vendor of fluid milk, fixing, setting or determining the price at which milk is to be sold to or resold by store customers or for selling on home delivery routes, or establish the difference or price differential between the prices of milk to store customers and to home deliveries, or the difference between the price of milk to stores and the prices which are to prevail when the milk is resold by the stores.

They shall not enter into any agreement with stores fixing out-of-store prices to consumer of fluid milk, or fixing the difference between out-of-store prices and retail prices to home delivery customers.

They shall not print or distribute any resale price lists suggesting out-of-store prices to the public (except lawful advertising) or require stores not to advertise the out-of-store price of milk.

They shall not induce the drivers' union to prevent any store from reselling milk at any price the store wishes to set (but they will not be liable if the Union does this on its own).

They shall not enter into any agreement a distributor or vendor whereby he refrains from soliciting milk business of any customer or any distributor, or allocate his milk business, or exchange the patronage or business of any customers, except where such an exchange is an incident of the sale or purchase of the business or good will or a portion thereof of a distributor or vendor.

They shall not try to corner the milk business of any customer through gifts or loans (exclusive of legitimate advertising media), except on a proportionate equal basis.

They shall not extend credit beyond thirty days, or favor stores with prices, or arrange credit for stores.

They shall not give any rebates, commissions, discounts or allowances to different store customers or prospective store customers.

They shall not give any store customer any rebates, commissions, discounts or allowances computed on the basis of a percentage of the out-of-store price at which fluid milk is to be sold.

They shall not enter into or continue in force any contracts of agreement for the sale of fluid milk, the consideration for which was any gift, payment or loan of any property of value.

What To Tell Customers When Pasteurization Is Criticized

By R. F. HOLLAND and J. C. WHITE

QUESTION — Occasionally some of our customers will tell us that they understand there are objections to the use of pasteurized milk and that raw milk, if they were assured that it was free from disease, would be much better for them nutritionally. What are some of the objections that are raised to pasteurized milk and are they valid?
—A. C. N., New Jersey.

ANSWER – When the pasteurization process was introduced into the United States, many objections were raised to it by misinformed people. Over the years, however, a great majority of the population has come to recognize the value of this process in protecting the health of the individual and studies have shown that the nutritional value of the pasteurized product is not materially changed or reduced. The book, *Dairy Bacteriology*, by B. W. Hammer, lists some of the objections that have been raised to pasteurization and discusses them in some detail. Some of the criticisms listed are as follows:

1. Organisms developing in pasteurteurized milk form harmful products. This idea was apparently based on the work of one man and the results are not directly applicable to pasteurized milk because the organisms were isolated from milk heated to much higher temperatures than those used in pasteurization. The development of toxic products by either pure or mixed cultures in milk held for extended periods is quite different from such development in milk held under the usual conditions. With long holding at temperatures favorable for bacterial growth, either raw or pasteurized milk may contain products that are toxic for experimental animals, but ordinarily the milk has undergone conspicuous changes and would not be used for food. We may, therefore, discount this argument.
2. Infants do not develop so well on pasteurized as on raw milk. The best argument against this is the large number of well developed children who have been fed on the pasteurized product. Careful observations in many cities show that many infants make entirely normal gains on pasteurized milk. Results on more than 3,700 children, ranging in ages from 10 months to 6 years, showed there was no significant difference between the average weights or heights of the two groups, one fed on heated milk and the other on raw milk. However, the parents of children receiving predominantly raw milk reported a higher incidence of diphtheria, scarlet fever, intestinal disturbance, and rickets than did parents of children receiving predominantly heated milk.
3. Products of bacterial growth are

(Please Turn to Page 157)

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Removes every trace of butterfat and milk. Keeps utensils clean and bright. An excellent alkaline cleaner for daily use. Available in 5-lb. cans, packed 12 to the case, and in 10-lb. cans, 6 to the case. General Manual Kleanser is also available in 25-lb. drums and 100-lb. bags.

MC-3, Alkaline Cleaner

MC-3 gets utensils clean in hardest water. Producers like its soapless suds and mildness to hands. Utensils dry streak-free. Available in 5-lb. cans, packed 12 to the case, and in 25-lb. drums.

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Atlantic City

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Dispensers, Multiple Vitamins Figure In Month's Legislation

By BETHUNE JONES

- North Carolina Puts O.K. On Bulk Dispensers
- Producer Inspection Fee Upheld in Des Moines
- Oleo Tax Receipts Drop In North Dakota
- Oregon Group Seeks Repeal of Milk Control Law
- Washington Threatens Legal Action Against Schools Serving Oleo

NEW REGULATIONS permitting the use of bulk milk dispensers in restaurants and other public eating places have been adopted in North Carolina and are under consideration in Michigan, reports from state capitals reveal.

North Carolina's State Board of Agriculture amended its dairy regulations to permit the use of such dispensers, effective Oct. 9. The dispensing devices which will be permitted are refrigerated boxes which, when operated either by a waiter or by a cafeteria customer, serve milk into glasses or paper cups. They are not coin-operated vending machines for dispensing packaged milk.

The new North Carolina regulation sets up a strict code of controls, including provisions stipulating that:

"No single serving of milk from such dispenser shall be less than eight fluid ounces."

"No surfaces with which milk or milk products come into contact shall, while in use, be accessible to manual contact, droplet infection, dust or flies, and the exposed surface of the delivery orifice shall be reduced to the minimum." Milk cans and any parts of the dispensers which are in contact with the milk must be cleansed and disinfected at the milk pasteurizing plant, not in the vendor's establishment.

Milk cans or containers used in dispensing devices shall be easily cleansed and, after one year, shall be made of stainless steel. (Stainless steel cans of the type needed for dispensing machines are not now available, the board was told; but the industry hopes to be in position to supply them within a year).

Only homogenized milk products may be sold from dispensers unless they are equipped with automatic agitators.

Bulk milk containers delivered by distributors shall be properly labeled with the name and grade of the contents, the identity of the distributor, and the date of pasteurization.

Dispensing machines shall be kept in view of the public and must be plainly labeled as to the contents and the name of the distributor.

Before placing milk dispensing machines in use vendors must first obtain a permit from the commissioner of agriculture, who is authorized to revoke such permits for violation of the new regulation.

Michigan's State Agricultural Commission had a hearing on August 20 to consider proposed regulation of bulk milk dispensing as permitted under a law enacted earlier this year by the state legislature.

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Under the new Michigan law, bulk milk dispensers must be operated in the same room where the milk is consumed except in hospitals, licensed child welfare agencies, and schools. The milk must be sold in not less than eight-ounce quantities and in receptacles holding not less than nine ounces.

IOWA: District Court Judge Russell Jordan upheld the validity of a Des Moines city ordinance requiring an inspection fee from milk producers serving the city.

His opinion was given in a suit brought against the city by Earl Felt, a Dallas County milk producer, who contended Des Moines was using excessive powers in levying a fee against persons living outside the city limits.

Judge Jordan noted in his ruling that "no milk producer is compelled to market his milk in Des Moines, and unless he markets his milk in Des Moines he is not required to undergo any inspection or pay any fee."

The opinion pointed out that the state code of 1954 specifically gives cities the power to provide for inspection of all milk sold for human consumption.

The power given to cities to inspect all milk sold, the opinion added, carries with it the power to levy a reasonable inspection fee.

The Des Moines ordinance, which has been in effect since April, 1953, requires an inspection fee of one cent a hundred pounds of milk to be paid by producers and a like amount by dairy operators.

MICHIGAN: Governor Williams early in August notified the State Agriculture Commission that he would approve new regulations setting maximum and minimum vitamin content of "super" fortified milk.

The commission is considering new departmental regulations fixing vitamin additives to milk after a long debate between dairies and nutritionists.

The governor informed commission members that his earlier veto of a state legislative act fixing lower maximums for added vitamins did not indicate his opposition to setting reasonable maximums and minimums by regulation.

Under a proposed regulation which was expected to receive commission approval, dairies could produce "super" fortified milk by adding from 3,000 to 4,000 units of Vitamin A, .75 to one milligram of Vitamin B1, 1.5 to 2 milligrams of Vitamin B2, 300 to 400 units of Vitamin D, and 7½ to 10 milligrams each of niacin and iron.

In addition to setting maximums and minimums, the new regulation would eliminate adding of iodine to fortified milk.

"I understand the maximums are based on the average person's optimum consumption of the several vitamins involved and that these maximums were set after consultation with experts in this field," the governor said.

NEW YORK: A bill is expected to be introduced in the 1955 state legislature to permit the sale of milk in gallon containers. The proposal is expected to be enacted with little opposition.

NORTH DAKOTA: State oleomargarine tax receipts for July totaled $26,010, a drop of 64 per cent from the $72,922 collected in the same month a year ago, according to an

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announcement by State Treasurer Ray Thompson.

For the first seven months of the current calendar year, the state's oleo tax yielded $222,510 compared with $402,529 in the corresponding period last year. The oleo tax collections during the fiscal year ended June 30 totaled $511,681, a drop of 13 per cent from the $590,418 collected in the preceding fiscal year.

In commenting on the decline in oleo tax receipts, Thompson attributed it, at least in part, to the removal of price supports from butter which left comparatively small difference between the price of butter and that of oleo when the tax is included.

North Dakota's oleo tax is imposed at the rate of 10 cents per pound for the uncolored product and 20 cents for colored.

OREGON: Probability that a proposal for repeal of Oregon's state milk marketing control law will appear on the November ballot was indicated when State Attorney General Robert Y. Thornton ruled that sponsors of an initiative petition for such a repealer had complied with the spirit of the state corrupt practices law but not the letter of the statute.

Thornton ruled that substantial compliance with the law would have to not interfere with the secretary of preparation of the official ballot so as to not interfere with the secretary of state's duties pertaining thereto.

Elmer Deetz, Canby dairyman sponsoring the initiative petition, subsequently announced he would furnish the additional information called for by Thornton's ruling.

In another Oregon development, the State Agriculture Department adopted new rules and regulations governing the sanitary operation of dairy plants. Main change from earlier rules adds the vacreator flow pasteurization at 194 degrees F. as an optional method of pasteurizing fluid milk and cream.

The new regulations also cover such other subjects as building and equipment construction and sanitation; cooling, packaging and storage; personnel health and cleanliness; weighing, sampling and testing of milk and cream; milk and cream grading, including equipment, procedure and grades; pasteurization methods and equipment and thermometer charts; and examination of applicants for dairy operator licenses.

WASHINGTON: Citing a state law prohibiting the use of oleomargarine in public school lunch programs in Washington, State Attorney General Don Eastvold warned school officials that his office would take legal action against school districts which serve it.

Eastvold said his warning was issued at this time because many schools were preparing to call for bids on supplies to be used during the coming school year. He said he had been told that Seattle and some west-side school districts had served oleo in past years.

"The legislature has clearly prohibited the use of oleomargarine and substitute butter in educational institutions receiving any money or financial assistance from the state," he said. "Since the legislature has deemed it advisable to enact this statute, we must govern ourselves accordingly.

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New Jersey Community Prohibits Outdoor Vendors

THE HIGH, happy ride that vending machines have been getting in the milk industry hit a bit of a bump late in August when the Township of Union, New Jersey enacted an ordinance prohibiting outdoor vending machines. The measure passed the Township Committee by a 4-1 vote. The ordinance provides for a $200 fine or 90 days in jail or both for violation.

The trouble began when Sunrise Dairies of Hillside, New Jersey, a firm that has been developing the vending idea rather vigorously, installed a milk vending unit near the center of Union. The town, a bustling suburban community about 15 miles from New York City, took a dim view of the installation and, through the town fathers, turned it down. The offending vendor was removed when the ordinance was enacted.

The Township Committee's majority expressed its attitude with the words, "We have heard so much about the surplus of milk, then why has the price been raised recently?" and "Vending machines must not be allowed to overrun our town."

Eight speakers from the fluid milk industry attempted to persuade township officials that the vending machine should be allowed to remain. There was an apparent fear that the Union action might set a precedent that would have a serious effect throughout the state.

The testimony included a statement by Chester Schomp, Deputy Director of the New Jersey Office of Milk Industry. Mr. Schomp stressed the importance of the national administration's effort to alleviate the surplus problem by increasing milk consumption. He pointed out that one of the methods for accomplishing this was the use of vending machines. The point was further developed by Harry Polikoff, of New York, who represented the National Automatic Association of Chicago. Mr. Polikoff quoted Secretary Benson, and showed pictures of Mr. Benson drinking milk in front of vending machines.

The Township Committee had no objection to vending machines used indoors, but wanted to "keep them off our streets and highways."

Big trouble with the industry story was summed up by Committeeman Roy E. Kitchell who said, "All the speakers tonight had a financial interest in this matter, but not one of some 200 milk dealers in Union, or representatives of Tuscan or Ideal Dairies, two of the largest in the state, located here, or any citizen, came to protest the ordinance. The sale of milk certainly will not be restricted by this law!"

Vending machines have become very popular with many milk distributors in New Jersey despite their absence from the Union meeting. Reports of highly satisfactory results have come rather constantly from dealers in the state. Consequently, although recognizing that the action of the Union Township Committee does not constitute a trend, industry men are somewhat disturbed by the ban.

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The Gerber Fat Test Method Reviewed

By DAVID LEVOWITZ, Ph.D.
Director, New Jersey Dairy Laboratories

WHETHER it be creamline milk, or homogenized, or a blend; or skimmilk, buttermilk, chocolate flavored milk or drink, or yogurt, the method which Dr. Nicholas Gerber developed in Switzerland in 1890 regularly provides, in a fraction of the time taken by the original Babcock test for whole milk, results accurate to within 0.1% of those attained by the Roese-Gottlieb technique.

The Test

The Gerber bottle, called a "Butyrometer," consists of a small closed bulb, connected by a flat glass tube to a larger bulb, whose other end is formed into a wide neck, which is closed by an elastic rubber stopper. The capacity of a butyrometer is fixed; reagents, as well as the sample, must be measured accurately. Automatic, "positive displacement" devices meter reagents rapidly and accurately; but if accidentally, too much or too little of one or another, or the sample is added, the error can be noted immediately and rectified.

To perform a test, 10 ml. of standardized sulphuric acid is dispensed into a bottle by an all-glass syringe; then 11 ml. of the well-mixed sample is introduced by pipette, 1 ml. of Gerber iso-amyl alcohol is added by another automatic syringe. The flask is now closed, by seating the elastic rubber stopper into the neck, through pressure exerted on a removable key.

Held vertically, with its stoppered end "up," the tube is shaken (a mechanical device can be used) horizontally, until the curd first formed is dissolved. The butyrometer is inverted ten to twelve times to mix the concentrated acid which has been segregated in the bottom bulb and flat glass tube, with the balance. With its small bulb pointing to the center, the bottle is inserted into a disc type centrifuge (20″ diameter) and spun for four minutes at 1200 r.p.m. The centrifuge design keeps the flask hot. The tube is transferred to a water bath at 145° F. until read. When pressure is exerted on the key, the stopper elevates the bottom of the fat column (which is a straight line in flat glass tubing) into registration with the nearest whole percentage calibration. The fat test is read promptly, by difference, to the bottom of the upper meniscus (which is slightly curved), to the nearest five hundredths of one per cent (0.05%).

The Principle of the Gerber Test

The Gerber Test was formulated on the observation that the fat, liberated after small globules' stabilizing membranes are destroyed by sulphuric acid, does not rise – even under the influence of centrifugal action. Large globules account for almost all of the fat in normal, whole raw milks; when milk is heated, its globules are reduced in size. In Europe, before pasteurization became the standard practice, it was customary to boil milk before it was consumed. Gerber could not therefore, ignore the fat rendered from small globules. In order to recover it, Gerber sought, and found a reagent which reduced the interfacial tension between the small fat particles and the reaction mixture, to expedite the fta's rising; the proper reagent, a highly purified iso-butyl carbinol (an iso-amyl alcohol) does not appear in the fat column.

Gerber noted that the fat which rose was not anhydrous – that even clear, golden yellow, good-looking fat columns contained some water. Gerber found that the concentration of the acid used dictated the percentage of water in the fat. To achieve constancy, for accurate bottle calibration, he specified that a definite volume of acid of standardized concentration was to be employed. (It is interesting to note that in this country, too, identical observations were made, with respect to the fat in Babcock tests; the practice of using less, strong acid or more weak acid, to achieve a good-looking fat column does not insure a constant water concentration in the fat layer.)

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Babcock also found that the fat of small globules did not rise, when sulphuric acid alone, was used as a reagent. To correct for the error of approximately 0.2%, due to the non-recovery of this fat from normal whole raw milk, Babcock measured the fat column from the "bottom of the lower meniscus, to the top of the upper." The correction, constant in his test, does not reflect conditions as they actually exist; the higher or lower the total fat content, all other things being equal, the proportionally greater or smaller the correction should be. Further, the ratio of smaller to larger globules, and the degree of globule clumping (which is also a factor) in normal raw whole milks, varies, due to breed of cow, stage of lactation, input of agitation, cooling, etc. Babcock and his colleagues acknowledged, too, that when sulphuric acid was the sole reagent, tests on skim-milk and buttermilk (where small globules account for varying but major percentages of the total fat) were always low, when compared to Roese-Gottlieb.

Neither homogenized milk nor sweetened, flavored milks were commercial entities in Gerber and Babcock's day; nor had the dairy industry developed to the point where it was imperative that normal raw whole milk had to be tested, not only rapidly, but so accurately that fat receipts and losses could be fully accounted for without error. The difference in the two tests' principles shows why it has been necessary to modify the Babcock to try to make it utilizable for homogenized and sweetened flavored products, while the Gerber is fully satisfactory for them, as well as for normal raw whole milk. The Babcock test for even normal raw whole milk is not yet considered satisfactory by many. Many individuals and committees are still engaged in trying to modify it to bring it into better conformity with the Roese-Gottlieb. Since the laws of physical chemistry cannot be reversed, their success is not destined, so long as sulphuric acid continues to be the sole reagent in the test.

Those who are experienced in Babcock operation are particularly appreciative of the advantages of the Gerber:

(1) The wide necked bottle – permits rapid reagent introduction; there is no "sealing" of the air space between the pipette wall and the bottle neck, to result in sample loss; no acid clogging a narrow tube, to drip on hands.

(2) Constant volumes of reagents – standardizing the acid once, on receipt of a new shipment, eliminates any need for attempting to estimate preferential volume for each individual test, as in Babcock, and insures uniform composition of fat in columns.

(3) The closed bottle – permits rapid shaking, and the use of mechanical devices; no shooting out of corrosive reagent, caused where undissolved curd clogs the Babcock tube, through a break in the shaking rhythm.

(4) The bottle design – automatic introduction of acid in two installments (found as advantageous in the regular Babcock test, and essential to the modifications); no charring.

(5) Flat glass tubing – promotes

(Please Turn to Page 153)

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Rapid Melting Key To Good Cream From Frozen Fat

By F. L. BRYANT

THE USE of frozen fat to supplement the supply of fresh cream in ice cream mix, sour cream, cream cheese and other dairy products has been an economical and practical method of meeting the fluctuations in supply. However, like most operations, problems have developed when the idea is put into practice.

Oxidized flavors due to slow melting, poor shelf life for sour cream due to increased acidity, low grade butter, poor housekeeping, and excessive labor costs are a few of the difficulties that have been encountered.

All of these problems are the direct result of the time involved in the melting process. The usual practice when using frozen cream was as follows:

Large pieces of frozen cream or butter after being removed from their containers, were thrown into the pasteurizers. This resulted in slow melting, oiling of the fat, damage to the fat and to the agitators, baffles and thermometers on the processing equipment. The use of axes and hammers to break the large pieces did not contribute to good housekeeping and was frowned upon. This led to the development of crushers and grinders which at their best were a half solution because the fat was still in solid form and had to be dumped over the side of the pasteurizers, a very unsanitary practice, or a recirculating method used involving additional equipment.

To obtain the high quality products from frozen cream or butter, such as can be made from fresh sweet cream, we must assume that the original product was of high quality, frozen quickly and kept in storage at 20° below zero F. Thus the frozen product arrives at the point of end use at top quality and far below the freezing point.

If in tins, the cream is warmed slightly with warm water so that it thaws only enough to slide from the tins. This is assuming that the tins are to be sold for another use or lined with polyethlene for reuse. Some operators prefer to slit the tin and remove the frozen product while it is still rock hard. This has the advantage of protecting the product, is a sanitary operation, and, since the product does not wet the tin, none sticks to the tin, resulting in a sub-

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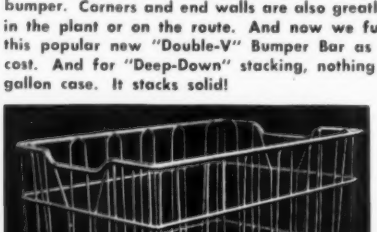

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stantial economy. Furthermore, the tins are then clean and can be stacked or bailed. In many cases it is necessary to pay out cash to get rid of the dirty cans. If thrown on a dump they make a perfect breeding place for mosquitoes Many operators have found that the most economical method of packaging frozen fat is in a polyethlene bag which is inserted in a cardboard outer box. This outer box, since it never contacts the cream, may be used again, and with reasonable care, may make several trips. After removal from the containers, if these frozen products are liquefied immediately, the result will be a liquid cream or butter of as fine quality as before it was frozen.

If these same products are melted slowly in a pasteurizer or thawed in a warm room several things will happen. Heat always flows "down hill" from a warmer to a colder body. The rate of flow is a matter of temperature difference and conductivity. Fat is a very bad conductor of heat, and, as the heat necessary for liquefaction (latent heat) moves through a piece of fat, portions of that fat are held at high temperatures for enough time for a number of undesirable processes to take place.

Oxidation—The air originally in the milk, which is emulsified into the cream by the separator blades, is not great in volume, but, being in microscopic particles, has great surface area. Therefore when melting in the slow conventional manner, oxidation takes place during the melting period.

Acidity – Portions of the melting product are in the incubating temperature range long enough for acidity to increase.

Destabilization – When bringing frozen cream back to the liquid state, and maintaining the cream phase, immediate liquefaction is of the greatest importance. During the change from solid to liquid, changes take place which require time. The proteins which are the emulsifying agent and which make it possible for the fat to remain suspended in water (an oil and water mixture called cream) tend to become destabilized. In order for destabilization to take place, aggregation must take place and aggregation takes time. Immediate liquefaction greatly reduces the destabilization effect and gives a liquid cream in the cream phase. Cream thus liquefied has been used in coffee without the "feathering" and "oiling" that takes place in the case of slowly melted cream. By immediate liquefaction the cream is brought to the liquid state without "oiling off" the fat. There are a great many advantages to this complete elimination of "oiling."

It has been said that in slow melting first the water, then the serum solids, and then the fat melts. Instead of cream we have three things, water, serum, and oil. Be that as it may, we know from experience that the damage that takes place in slow melting is eliminated by fast melting.

In the manufacture of butter from frozen cream proof of damage to the cream by slow melting has been very conclusive. In making one batch of butter from frozen cream the cream was melted in a pasteurizer in the conventional manner. The butter was of very low grade. In making the balance of the same frozen cream into butter, consisting of hundreds of thousands of pounds, a high score butter was obtained by quickly liquefying the frozen cream. In butter, of course, there are no masking flavors and the

(Please Turn to Page 155)

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New Support Level Dictated By Heavy Surplus Supplies

By GORDON URNER

SUDDEN TRANSITION from near famine to button-bursting feast forced the government price support program for dairy products late in 1952 into a test it was not equipped to stand. Net result was lower support prices.

In the fall of 1952, the build-up of dairy herds that had been going on almost unnoticed during the post war years flooded the market with milk. This vast increase in production was also stimulated by conditions extremely favorable for production. Total milk production jumped from 115 billion pounds in 1952, to 121 billion pounds in 1953. Current production, although curtailed temporarily by weather conditions, is expected to approach or equal last year's.

Despite an expanding population and a total increased fluid milk consumption, the sudden appearance of an extra 6 billion pounds of milk was more than the market could absorb. The federal price support program was the only market for the surplus. As a result government purchases increased to the breaking point. Commodity Credit Corporation support purchases from April 1, 1952 through March 31, 1954 were:

Butter	523,513,000 lbs.
Cheese	528,183,000 lbs.
Dried Milk	876,282,000 lbs.

The breaking point was manifested in a strong public reaction that found expression in political form. The Eisenhower farm program, embracing flexible price supports, was adopted in August 1954. Prior to this, Secretary of Agriculture Benson had dropped price supports on dairy products from 90 per cent of parity to 75 per cent.

During the summer just passed, dry weather curtailed production and caused at least a temporary decline in the amount of goods purchased in the support operation.

Although there has been a falling off in volume of purchases, the huge stocks of dairy products in government hands have had a definite depressing effect on the market. USDA has made strenuous attempts to find ways and means of reducing the amount of surplus without conspicuous success. Most spectacular projects were the proposed sale of several million pounds of butter to Russia, a project which ran head on into a strong anti-Soviet feeling, and the sale of dry milk to feed manufacturers at practically give-away prices.

Printed here are a series of tables that show clearly the course of events during the last two years.

USDA SUPPORT COSTS, DAIRY PURCHASE TOTALS, AND INVENTORIES

Commodity Credit Corporation's report of recent status of its loans, purchase costs and inventories under the support operation on all commodities as of June 30, 1954 shows that price support program loans and inventories as of that date amounted to above 6 billion dollars.

—o—

USDA SUPPORT PURCHASES OF DAIRY PRODUCTS BY MONTHS, SEPT. 1952-AUG. 1954

(Approximate Figures in Thousands of Pounds—000 Omitted)

	Butter	Cheese	Nonfat Dry Milk Solids
1952			
Sept.	None	None	5,044
Oct.	None	None	4,291
Nov.	358	None	3,994
Dec.	15,705	1,670	10,166
1953			
Jan.	36,188	10,152	29,667
Feb.	38,544	17,918	42,726
Mar.	52,553	44,441	86,532
Apr.	24,884	26,862	44,972
May	42,574	35,400	75,669
June	66,817	40,825	84,607
July	50,349	42,583	67,255
Aug.	28,128	30,388	47,117
Sept.	3,829	24,244	34,916
Oct.	826	7,039	20,317
Nov.	3,195	4,319	17,105
Dec.	11,024	6,903	36,773
1954			
Jan.	28,409	22,698	52,637
Feb.	33,877	33,111	55,287
Mar.	81,440†	96,629*	131,966
Apr.	14,834	9,818	41,602
May	44,313	21,854	75,635
June	65,452	33,419	97,991
July	35,265	22,918	63,957
Aug.	13,235	16,860	44,926

†Additional March 19-31 purchases of 5,138,000 lbs. butter under DA-112, the purchase-resale program.

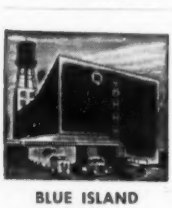
*Additional March 17-31 purchases of 92,262,000 lbs. cheese under DA-112, the purchase-resale program.

—o—

Dairy products included in the June 30 inventory:

Butter	467.1 million pounds
Cheese	419.1 " "
Dried Milk	440.1 " "

Costs of these products were: Butter—$304,309,114; Cheese—$167,598,056; Dried Milk—$71,927,874.



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CENTRAL COLD STORAGE CO.

350 N. Dearborn St. Tel.: SUperior 7-7548 Chicago 10, Illinois

SO. WATER MARKET PLANT

DEARBORN STREET PLANT

Estimated USDA stocks of the dairy group on August 31, 1954 were:

Butter	445,151,000 lbs.
Cheese	425,084,000 lbs.
Nonfat Dried Milk	223,789,000 lbs.

—o—

Commodity Credit Corporation support purchases for the "crop year" commencing April 1, 1954, stand as follows up through September 10:

Butter	175,548,000 lbs.
Cheese	109,452,000 lbs.
Dried Milk	336,282,000 lbs.

C.C.C. support purchases for the period commencing April, 1952 and ending March 31, 1954, were approximately as follows:

Butter	523,513,000 lbs.
Cheese	528,183,000 lbs.
Dried Milk	876,282,000 lbs.

—o—

CHANNELS USED FOR DISTRIBUTION OF GOVERNMENT SURPLUS

Sales for private export under the 1954 program up through September 9:

Butter	810,330 lbs.
Cheese	158,624 lbs.
Dried Milk	1,005,000 lbs.

—o—

Sales for use as cocoa butter extender, 1954 program up through September 9:

Butter	1,020,000 lbs.

Sales for reconstitution as liquid milk, for export, 1954 program up through September 9:

Butter	342,000 lbs.

—o—

Sales for conversion into butter oil for United Nations use abroad, 1954 program up through September 9:

Butter	7,875,000 lbs.

—o—

Sales to U. S. Armed Forces, 1953-1954 program, up through August 31:

Butter	33,436,000 lbs.
Cheese	486,000 lbs.
Dried Milk	6,831,000 lbs.

—o—

Sales back to the industry for commercial use, 1953-1954 program, up through September 9:

Butter	9,760,000 lbs.
Cheese	113,355,000 lbs.
Dried Milk	65,000 lbs.

—o—

Sales under School Lunch, welfare and relief outlets, domestic and foreign, 1952-1954 program, up through August 31:

Butter	198,155,000 lbs.
Cheese	91,970,000 lbs.
Dried Milk	170,949,000 lbs.

—o—

Sales of nonfat dry milk solids to mixed feed manufacturers under LD-6 program, May 4-August 31, 1954:

Dried Milk, total sales	573,153,000 lbs.

DAIRY PRODUCTS PRODUCTION

U. S. Butter Production Comparison
(USDA Figures — Pounds)

Jan.-July 1954 (prelim.)	971,160,000
" " 1953	917,185,000
" " 1948-1952 avg.	806,398,000

Jan.-July increase over 1953, 6%; over 1948-52 avg., 20%.

U. S. Cheese Production Comparisons
(USDA Figures — Pounds)

Jan.-July 1954 (prelim.)	671,780,000
" " 1953	632,100,000
" " 1948-1952 avg.	563,908,000

Jan.-July increase over 1953, 8%; over 1948-52 avg., 23%.

U. S. Nonfat Dry Milk Solids
(USDA Figures — Pounds)

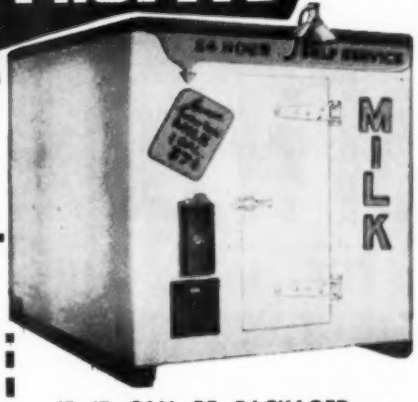
Jan.-July 1954 (prelim.)	904,350,000
" " 1953	795,850,000

Jan.-July increase over 1953, 11%.

USDA ESTIMATES OF PRODUCTION OF SUPPORTED DAIRY PRODUCTS BY MONTHS, SEPT. 1952-JULY 1954
(In Thousands of Pounds — 000 Omitted)

	Creamery Butter	American Cheese	Nonfat Dry
1952			
Sept.	92,125	71,580	52,106
Oct.	87,665	61,869	45,656
Nov.	75,884	51,781	43,848
Dec.	94,592	54,166	66,086
1953			
Jan.	106,000	58,375	77,850
Feb.	102,960	59,935	81,200
Mar.	122,585	78,875	111,250
Apr.	133,995	92,625	129,600
May	156,550	118,645	154,750
June	157,010	121,645	144,300
July	138,085	102,000	114,750
Aug.	119,645	88,730	91,900
Sept.	96,730	72,450	67,050
Oct.	92,375	61,505	65,150
Nov.	90,765	56,230	68,290
Dec.	108,240	63,225	94,250
1954			
Jan.	118,465	72,135	103,350
Feb.	115,910	70,810	102,300
Mar.	142,295	86,575	131,650
Apr.	141,305	97,400	138,350
May	163,815	123,090	164,750
June	159,755	122,345	153,000
July	129,615	99,425	110,950

Extra FEATURES FOR MORE PROFITS



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Make certain that you are getting the most for your investment.

F. B. Dickinson & Co.
80th and University
Des Moines, Iowa

Please send facts on Sturdy-Built Stations.

Company .....

Address .....

City and State .....

Your Name .....

IF IT CAN BE PACKAGED — STURDY-BUILT CAN VEND IT!

Industry Leaders Choose the Stations that are

DESIGNED FOR LONG LIFE OF TROUBLE-FREE OPERATION

MADE BY THE PIONEER AND LEADER IN THE FIELD

Profitable milk vending depends a great deal upon proper equipment. That's why so many successful operators are using STURDY-BUILT Stations. Years of research and experience have enabled the Dickinson Company to meet the industry's needs. As an example, in STURDY-BUILT, the container remains upright at all times; there is no spillage. There are many other features such as latest model coin switch, sales appeal in design, and all available at lowest possible price.

STURDY-BUILT

Self-Contained Refrigerated

MILK VENDING STATIONS

Shipped completely assembled ready for immediate use.

SEND COUPON FOR PROFIT FACTS

F. B. DICKINSON & CO., 80TH & UNIVERSITY DES MOINES, IOWA

The Role of Management in the Control of Mastitis

A Report to the Mastitis Committee of the Pennsylvania State Veterinary Medical Association—By R. F. Davenport, Supplee-Wills-Jones Milk Company, Philadelphia

IT IS CONCEDED by all parties that the best weapon we have to control mastitis is the cow's natural resistance to the disease. Practical experience has demonstrated that careful management may make use of this resistance and the disease may be largely controlled by those methods.

What are some of the important points of good management?

Milking procedure:

No discussion of dairy herd management would be complete without special emphasis on the need for quiet and gentle handling of the cow. As one authority put it, "cows are ladies and should be treated accordingly."

Use strip cup regularly:

This reveals abnormal milk and at the same time eliminates the foremilk which is almost always low in fat and high in bacteria.

Check vacuum of milking machine:

It should be exactly as recommended by the manufacturer.

a. Too much vacuum causes damage to the udder (trauma).

b. Too little vacuum results in slow milking, incomplete milking and may even result in lack of proper lubrication of the teat canal with resultant trauma.

c. Uneven flow of vacuum—all air lines and hose must be clean to permit steady operation of the machine.

Check rubber parts of milker:

Especially the inflators which may lose their resiliency after extended use. This causes slow and incomplete milking and may result in tissue damage due to touching one part of the teat constantly and missing other parts.

Check pulsation rate of milker:

Should be according to manufacturer's directions. Any marked change can cause difficulties as described above.

Check cleanliness of milker:

A clean milker operates more efficiently and results in a higher quality of milk. Cleanliness in the control of mastitis is recommended on the general principle that cleanliness is always an aid in any disease control program.

Check speed of milking:

Repeated experiences have shown that careful use of the "managed" or "rapid" milking practices does aid materially in the reduction of mastitis.

Check intervals between milkings:

There should be an equal length of time between milking, whether on two or three times a day basis. High producing cows should always be milked three times daily.

Hand milking:

Should be dry and rapid using the full hand, with no tugging or pulling.

Care of dry cows:

Dry off by materially reducing the stimulating feeds and even limit the water supply if necessary. Continue the regular milking procedure until the effects of the reduced feed and water are noted, then stop milking entirely.

As calving time approaches, premilk if udder becomes distended or if there is leaking from the teats. Once premilking is begun, remove all milk from the udder at each milking in the usual manner.

Care of calves:

Immediately remove from cow to avoid injury to udder. Place calf in individual pen to avoid sucking by other calves.

Feeding the cows:

Secure as much as possible of the total nutrient requirements with high quality roughage. Feed grain according to the quality of the roughage. Avoid excessive amounts of high protein concentrate. Avoid sudden changes of types of feed.

Protect from physical injuries caused by:

1. Improper stall construction (too short or too long).
2. Insufficient bedding.
3. Dangerous approaches (slippery walks, high sills, trash in yards, etc.).
4. Horns of other cattle.
5. Dogs and children running the cows.
6. Boss cows.
7. Medical treatment of apparently healthy udders, either lactating or dry.

Protect from atmospheric injuries caused by:

1. Sudden chills, drafts, cold concrete and ground.
2. Provide special care in sudden changes of the weather.

Provide clean and comfortable environment:

1. Clean, well lighted, well ventilated, well bedded stalls.
2. Clean, well drained yards.
3. Avoid water holes in yard and pasture.
4. Use accepted measure for control of flies, spiders and rodents.

Providing herd replacements:

First choice is to raise the heifers from cows that have good udder conformation and preferably from animals known to be resistant to the disease. Second choice is to purchase bred heifers.

If circumstances necessitate the purchase of adult cows, buy them while in lactation and have them carefully examined by your veterinarian.

Procedure if mastitis appears in herd:

Do not treat the animals yourself, call your veterinarian. Follow his instructions as to treatment and care of the sick animal. Ask his advice as to prevention of the disease in the balance of the herd.

Check for correct management procedures as described in preceding paragraphs.

Concern over the problem of mastitis has been heightened recently by the widespread and uncontrolled use of antibiotics. A recent article by Mr. H. A. Boland printed in the July, 1954 issue of the "American Milk Review" discussed this matter in considerable detail. The wide response that the article received is an indication that the problem needs attention. The program outlined above is a long step in the right direction.

EVERYTHING
FOR *SAFE* MILK HANDLING
from Cow to Creamery!

SEAMLESS TINNED DAIRY PAILS

Rugged, seamless construction and heavily tinned for hard wear, long life. Free of bacteria collecting crevices—easy to clean. 10 to 20 quart capacity models. Available in open and hooded types.

SOLDERLESS, SEAMLESS TINNED MILK STRAINERS

Types available for use with either cotton discs or flannel squares. Designed for quick, easy loading. Smooth, heavy coating of pure straits tin provides a sanitary easy-to-clean surface.

SEAMLESS, MILK SHIPPING CANS

Rugged, seamless construction with heavy breast and bottom hoops for long life. Monarch stamped steel handles. Either umbrella or plug type covers. Heavily coated with pure straits tin for easy cleaning, long wear.

Every Dairyman knows that modern, sanitary methods of milk handling enable him to get top prices for his product. That's why so many milk producers use Atlantic Dairy Metalware . . . to safeguard their product and their profits. And don't forget that Atlantic makes the most complete line of seamless dairy metalware available today. In it, you'll find just the type of equipment you need. Write today for descriptive literature.

Other items in the Atlantic Line include:
MILK KETTLES • MILK STIRRERS • MILK SETTER CANS
MILKING STOOLS AND MILK DIPPERS.

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THE ATLANTIC STAMPING COMPANY
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DAIRIES INDUSTRIES EXPOSITION
Convention Hall Atlantic City, N. J.

October 25th to 30th, 1954

Vending Machines and Bulk Milk Dispensers

A MARKET STUDY by the American Dairy Association shows that most of the fluid milk consumed is consumed in the home. A major reason appears to be lack of availability elsewhere.

Vending machines and bulk milk dispensers are considered to be a good method of meeting this problem. Interest in these types of outlets has been impressive, growing steadily during the last two years. Endorsed by the United States Department of Agriculture and given quite a boost by widely publicized installations in the Department, vending machines have become increasingly popular.

Five types of machines predominate in the dairy industry. These types are:

1. Outdoor machines selling quarts and half gallons to retail customers.
2. Machines installed in apartment houses selling quarts.
3. Machines in industrial plants, schools, offices, trains, etc., selling half pints, third quarts, and pints.
4. Bulk milk dispensers in eating establishments.
5. A combination vending machine and bulk milk dispenser that sells milk in a paper cup.

There have been many stimulating reports on the effectiveness of this method of selling milk. A Wisconsin dealer, according to Professor H. L. Cook, said a milk vendor installed beside a soft drink vendor in an industrial plant sold 1,680 units of dairy beverages in a given month against about 100 bottles of soft drink from the other machine. Soft drink sales had formerly been between 1,600-1,800 bottles a month. Another case reported 24 bottles of soft drink consumed in 5 working days through a vendor compared to about 500 units of dairy drinks. Previously, about 500 bottles of soft drink had been consumed at that location. The implication is that milk and dairy drinks can outsell soft drinks given the opportunity.

There appears to be a growing feeling of appreciation among milk distributors that vending machines are a peculiarly specialized type of distribution. Definite techniques, definite principles must be observed if an operation is to be a success.

Basic elements in a vending operation are:

1. Selecting the proper machine.
2. The location.
3. The mechanics of operation.
4. Pricing.

Factors to be considered in selecting vending equipment are:

1. What is its capacity?
2. Is it economical to buy, service, clean, and maintain?
3. Is it adaptable to various containers?
4. Does it handle the desired number of products?
5. Is it ruggedly constructed?
6. Is it attractive in appearance and simple to operate?
7. Will the manufacturer stand behind it?

Factors to be considered in location are:

The daily sales volume that can be expected. This is more easily estimated for industrial locations where the number of employees having access to a machine is known, than for other types of locations. Even in industrial plants the ratio of dairy sales to number of persons is quite variable and depends upon the type of work done, the economic status of employees, and other factors. A range from 0.2 to over 1.0 unit sold per worker per day has been reported. A second factor is the cost of delivering milk to the location at the time it is needed. A location which is otherwise satisfactory may not be desirable if it is too far away from other points to which milk is being delivered. The third factor is the adaptability of the equipment to the needs of the location. The size, capacity, cost, and speed of operation of a vending machine may be satisfactory for one location and type of operation and not for another.

General observations on operation, according to a study made by A. J. Morris and Gordon Hopson of Utah State Agricultural College for the American Dairy Association, include the following:

1. Keep machines repaired and operating.
2. Study peak loads and never let a machine run out of the product sold. The vendor is a "silent salesman" but when empty the silence is paralyzing. Vending requires more "know-how" than delivering.
3. If we expect the vendor to make over 200 sales in 15 minutes the vendor must be full, accessible, and the operation convenient.
4. Where a vendor route is established, about 25 machines are required for efficient operation.
5. Five vendors are a minimum for operation from a wholesale truck on a regular route.
6. Deliveries and servicing must be done regularly each business day.
7. Appearance is important. On one location a vendor was repainted and suitable signs and posters displayed which brought an increase of 300% in sales.
8. It costs 1½ cents per unit for delivery, servicing, clean up, repairing, depreciation and interest.
9. One of the problems is vandalism.
10. Vendors must be kept busy the year 'round. Vendors in school locations may be moved to other places during the summer vacation.

*Estimated Budget for Specialized Milk Vending Enterprise Operating 200 Venders (Stocked with Pint Glass Bottles—Plain Milk) for Business Year of 252 Days, Wisconsin, 1950 * †*

	Units and Rates	Dollars	Cents Per Pint
Net Sales:			
Gross Sales	200 @ $5.00 for 252 days	$252,000.00	10.0
Vender price $0.10 per unit			
Cost of bottled, delivered wholesale milk	200 @ $4.00 for 252 days	201,600.00	8.0
Vender price $0.08 per unit			
Receipts after milk purchased		$ 50,400.00	2.0
Operating Expense:			
Mechanics and cleanup men	4 @ $9.76 per day	$ 9,838.08	.39
Service trucks operation and maintenance	4 @ $9.29 per day	9,364.32	.37
Depreciation venders	200 @ $385.00 @ 10% per year	7,700.00	.31
Interest on investment—venders	200 @ $385.00 @ 4%	3,080.00	.12
Repair materials—venders	200 @ $12.00 per year	2,400.00	.10
Commissions to location	5% gross sales	12,600.00	.50
Total Operating Expense		$ 44,982.00	1.79
Net returns		5,417.60	.21

*Assumes enterprise can buy wholesale milk delivered to venders in bottles for same as minimum wholesale delivered price in small Wisconsin towns in this survey.

†Estimates based on secondary materials are from the following sources:
Commissions to location: Vend, op. cit.
Mechanical and cleanup labor requirements: Vend, op. cit.
Wages: Changes in the Dairy Industry, United States, 1920-50, U.S.D.A. 1950, table 16.
Service trucks operation and maintenance: Legislative Document No. 46, State of New York, Part 1, 1949, table 6.

This table is taken from a study made by Professor Hugh L. Cook of the University of Wisconsin.

REFERENCE MATERIALS

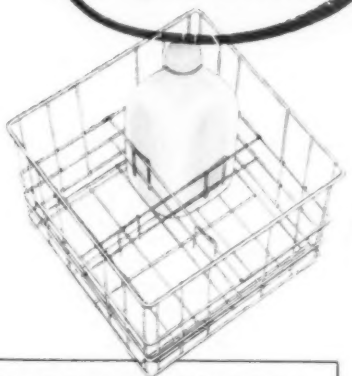
1. A Business Analysis of Milk Vending Operations—Hugh L. Cook, University of Wisconsin Agricultural Experiment Station.
2. Vending Machines, An Opportunity for Sales—Hugh L. Cook, University of Wisconsin.
3. Selling Milk Through Milk Dispensers in Intermountain Area—by A. J. Morris and Gordon Hopson, Utah State Agricultural College.
4. Proceedings of a Conference on Vending Machines—Held by the Dairy Department of the University of Connecticut in May, 1954. Contact Professor E. O. Anderson.
5. The Mechanical Cow Sells Milk—Reprint M 63, News for Cooperatives, Farmer Cooperative Service, USDA.
6. How Much Profit in Vending—Norman Myrick, American Milk Review, August, 1954.
7. Outdoor Milk Vendors Make Steady Gain—Norman Myrick, American Milk Review, April, 1954.

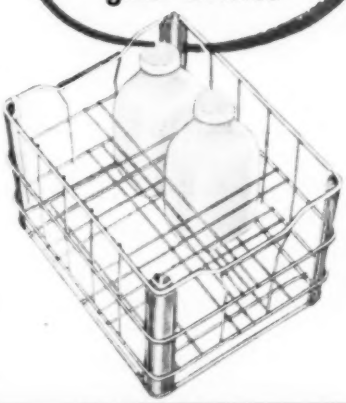
Other articles on vending have appeared in the *American Milk Review*, *The Milk Dealer*, and the *Milk Plant Monthly*.

SUPERIOR Wire Crates

For one gallon glass bottles

For half-gallon glass bottles





DAIRY INDUSTRIES EXPOSITION
We'll be there . . . Booth K-3!
ATLANTIC CITY, OCTOBER 25-30th

PUT YOU ON THE MULTIPLE-UNIT BANDWAGON!

In city after city, trend is to buying milk in larger than quart sizes. Milwaukee – 80%. Tulsa – 70%. Now you can get aboard this sales bandwagon with Superior Wire Crates – sanitary, durable, light-weight and economical. Write today for full details to:

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St. Paul, Minnesota

Vitamin Fortification Of Milk And Dairy Products

MULTIPLE VITAMIN fortification of milk has been the principal development in this field during the past two years. The matter is a controversial one with some nutrition authorities terming it "gilding the lily" while other authorities endorse it.

Dr. L. A. Maynard of Cornell University says "It is becoming increasingly recognized by nutrition scientists that malnutrition can be caused by nutritional imbalances resulting from excesses of certain nutrients as well as by actual deficiencies. Excessive and indiscriminate multi-fortification can have this undesirable result."

Dr. Tom D. Spies, Professor of Nutrition and Metabolism at Northwestern University, says that it is a waste of time for people to dose themselves with vitamins when they don't need them. "But," he says, "there are many who need them and don't take them. To me that is a greater waste. I am more concerned about those who don't get vitamins than with the group that gets them needlessly. The second group will simply excrete the water-soluble vitamins."

Differences of opinion among nutritional authorities are reflected in health regulations governing multi-vitamin fortification. Michigan, for example, had a real knock-down and drag-out legislative battle on the issue that is still unsettled, although indications are that multi-fortification, at first turned down, will now be given approval. Twenty-one states permit multi-vitamin fortification of whole and skim milk.

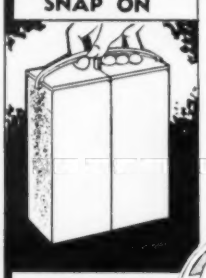
As a sales builder multi-fortification apparently has a substantial appeal. Texas approved multi-vitamin fortification on April 1, 1954. Ten large firms began distributing milk so fortified, immediatley. All reported "satisfactory" or "excellent" results. One firm reported an average of 32 quarts per retail route after the first week and 65 quarts per retail route after the second week. Doctors in Texas generally accepted the product with considerable interest. A distributor in San Antonio reported 99 inquiries from doctors wanting samples.

A survey made in a mid-western city among customers buying multi-vitamin fortified milk revealed some pertinent information.

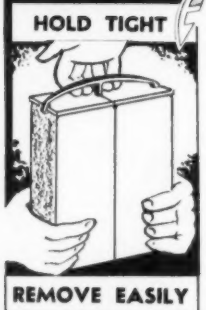
Of 313 people interviewed, 65% said they were influenced to buy multi-vitamin milk by the routeman, 7% said that local advertising was what got them started, 5% said they use the product on their doctor's recommendation.

The report showed that there was 50% less turnover among customers using multi-vitamin milk than with any other milk.

SNAP ON



HOLD TIGHT



REMOVE EASILY

INCREASED DEMAND MAKES POSSIBLE

NEW LOW PRICES

TWO TOTER

---couples two quart cartons inexpensively for half gallon sales . . . a sturdy plastic handle that easily snaps on, holds tight and removes easily from all style cartons . . . now available for quick delivery from east or west points.

TWO-TOTERS are available in four smart colors and are quite inexpensive. They are reusable as customers return them.

SEND FOR FREE SAMPLE TODAY

Half Gallon Business
At Lowest Possible Cost!

PRICE LIST

One Million . . . . . 9.85 Per Thousand
249 Thousand . . . . 10.11 Per Thousand
99 Thousand . . . . 10.39 Per Thousand
48 Thousand . . . . 11.00 Per Thousand
Less Than
48 Thousand . . . . 11.75 Per Thousand

Standard Pack is 3000 — (43 lbs. wt.)
F.O.B. Glendale, Calif. or Franklin, Penn.
Orders Shipped from Point of Lowest Freight Cost

MAYFAIR PRODUCTS
Post Office Box 87 Torrance, California

Fewer colds were noted by 27% of the families using the product, while 12% said they thought it aided digestion and improved appetite.

Multi-vitamin milk usually commands a premium of one to two cents.

Acceptance of milk fortified with vitamins A and D is practically universal with skim milk. Skim milk fortified with these products is being sold in 32 states.

A brilliant feather in the dairy industry's cap is the credit given to the industry for its cooperation in the eradication of rickets. A logical medium for carrying vitamin D, the anti-ricket vitamin, the practically universal fortification of milk and dairy products with vitamin D has been held to be the major factor in the disappearance of rickets.

Another recent development in vitamin fortification of milk has been the design of equipment that will allow continuous fortification in the processing line. The equipment consists of a dispenser of the bulk milk type, a positive displacement roller-tube pump, and a length of tubing. The vitamin mixture is pumped from the dispenser through the tubing according to a meter, and into the processing line at a point next to the supply tank of the short-time high-temperature pasteurizer. This technique is reported in detail in the August 1954 issue of the *American Milk Review*.

STATES IN WHICH MULTI-VITAMIN-MINERAL MILK OR MILK PRODUCTS AND VITAMIN A AND D FORTIFIED MILK OR MILK PRODUCTS ARE BEING SOLD

State	Vitamin A and D				Whole and Skim Multi-Vitamins
	Whole	Fat-Free Defatted Non-Fat	Skim	L.F.H.S.	
Alabama			X	X	
Arizona	X	X	X	X	X
Arkansas		X	X		X
California	X	X	X	X	X
Colorado			X		X
Connecticut			X		X
D. C.—Washington			X	X	
Florida			X	X	
Georgia		X			
Idaho			X	X	
Illinois	X		X	X	X
Indiana	X		X	X	X
Iowa	X		X		X
Kansas			X	X	X
Kentucky			X	X	X
Maine *(Portland only)*	X	X			
Maryland *(except Baltimore)*		X	X	X	
Michigan				X	X
Minnesota	X		X	X	X
Missouri			X		X
Montana		X	X	X	
Nebraska			X		
Nevada			X		X
New Jersey			X		
North Carolina *(Durham only)*				X	
Ohio	X		X	X	X
Oklahoma		X			X
Oregon	X	X	X		X
Pennsylvania		X	X	X	
South Carolina		X			
South Dakota		X	X		
Tennessee			X		
Texas		X	X	X	X
Utah		X	X	X	X
Vermont		X	X	X	
Virginia		X	X	X	
Washington	X		X		X
Wisconsin	X		X		X

Check QUALITY FEATURES PRICE and You'll Decide on WALKER FARM PICK UP TRUCK TANKS

Two compartment cabinet separates mechanical unit from milk handling lines. Maximum Sanitation

You Are Cordially Invited to Visit Us In

Booth 33

D.I.S.A. EXPOSITION, ATLANTIC CITY, N. J.

Stop in at Booth 33 and see the sound engineering quality materials and expert workmanship that goes into the manufacture of all Walker equipment. Then too don't miss seeing the . . .

new *Walker Cabinet Heater,* that ends winter freezing problems in bulk milk transfer.

new *Type Round Stainless Steel Deck Plate,* with metallic seal for dust cover.

new *Portable Type Refrigerated Chest* for carrying milk samples.

new *One Piece Pressed Tank Heads,* and many other outstanding Walker Features.

WALKER STAINLESS EQUIPMENT CO.

NEW LISBON, WISCONSIN

MILK INDUSTRY FOUNDATION CONVENTION PROGRAM

Sunday, October 24—Carolina Room, Chalfonte Hotel, 8:30 P.M.

Informal get together sponsored by Milk Industry Foundation, International Association of Ice Cream Manufacturers, and Dairy Industries Supply Association. Entertainment by OBERNKIRCHEN CHILDREN'S CHOIR. Also refreshments and incidental music.

Monday, October 25—Vernon Room, Haddon Hall Hotel, 9:30 A.M.

General session featuring prominent speakers. Afternoon and evening left open.

Tuesday, October 26—Haddon Hall, 8:00 A.M.

Round Table Breakfast conferences. Tables labelled for discussion of specific subjects. One representative from each town or city permitted at each table. Subjects to be discussed:

- Truck Washing
- Brucellosis Eradication
- Fat Rings on Homogenized Milk
- Producer Pricing
- Seasonal Production
- Paper vs. Glass
- Vending & Dispensing
- Cultured Products
- Brake Squealing
- Farm Tank Sampling
- Farm Problems
- Milk Flavors
- Cost Comparisons
- Refrigerated Retail Truck
- Salesmen's Incentives
- Salvage of Returned Route Milk
- Quantity Discounts on Retail Business

Tickets Required

Tuesday, October 26—Haddon Hall, 9:00-12:00 Noon and 2:00-5:00 P.M.

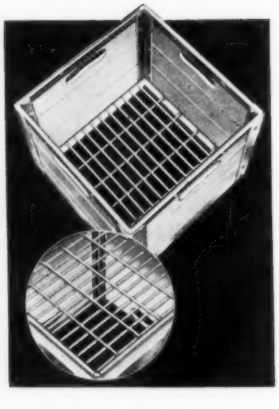
Six technical sessions all beginning and ending at the same time.

Laboratory Section

"Methods Employed in Milk Quality Control in Canada"
"Quality Standards and Methods of Measurement for Cottage Cheese"
"What Do We Know About the Freezing Point of Milk"
"Frequent Errors Made in Babcock Testing"
"The Gerber Fat Test"
"The Value of Laboratory Pasteurization in a Quality Control Program"
Symposium: "Flavors in Milk"

Milk Supplies Section

"To Help You Build a Better Silo"
"Analysis of Trends in Milk Production—Effect on Future of Industry (size of dairy farms, break-even points, etc.)"
"The Control of Mastitis—Use of Antibiotics and Their Effect on Milk Quality"
"Bulk Cooling Equipment"
"Pricing Problems Created by Farm Tanks"
"Problems Associated with Bulk Handling"
Open Forum



At the D. I. S. A. Exposition It's

Booth C-3
FOR
QUIRK

★ Cold Seal Milk Case Cabinets
★ Ice Cream Cabinets
★ Bottle Saver Crates

We cordially invite you to step in at Booth C-3 where the complete line of Quirk Manufacturing Co. products will be on display. Courteous representatives will be glad to give you all particulars, and assist you with your product handling problems.

Quirk MANUFACTURING COMPANY
3405 East Layton Avenue, Cudahy, Wisconsin

First Showing
COLD SEAL
ICE CREAM CABINET

Motor Vehicles Section

"Safety and Driver Training"
"Are Automatic Transmissions Desirable in Delivery Vehicles?"
Panel Discussion: "Refrigerated Delivery Trucks"
"Fuels and Lubricants"
Panel on Leasing vs. Ownership
"How to Show Managers How Truck Costs Affect Profits"

Accounting Section

The below mentioned topics are discussed here:
"Route Accounting"
"How Can Route Accounting be Simplified?"
"The Economics of Quantity Pricing"
"Case Histories of Paper vs. Glass"
"Economics of Farm Tank Pick-up"
"Accounting Control of Plant Production and Butterfat Losses"
"Let's Have a Budget"

Plant Section

In this section the following are considered:
"New Development in Waste Control and Disposal"
"Fat Solids and Dollars"
"An Economical Dairy Waste Disposal System"
"What's New In the 1954 Dairy Equipment Show"
"Trends in Milk Plant Design and Construction"
"Methods and Materials for Cleaning Milk Plant Interiors"
"How Should We Obtain and Train Technical and Supervisory Employees?"

Sales and Advertising Section

"Expanding Our Sales Through Market Research and Promotion"
"Delivery Expense and Quantity Discounts"
Symposium: "Making the Most of Industry Promotions"
"Improving Employee Relations"
"The Balanced Job of Milk Route Safety"
Panel: "Does It Pay to Use Television"
"Selling More Milk to More Women"
"Recent Developments in Vending"
Symposium: "Our Most Successful Promotion"

Tuesday, October 26—Along the Board Walk, 6:30 P.M.-12:00 Midnight

Individual State dinners for student judging teams. Dinners to be followed by grand Awards Ball at Convention Hall. Tickets required.

Wednesday, October 27—Haddon Hall, 8:00 A.M.

Continuation of Round Table Breakfast conferences. Tickets required.

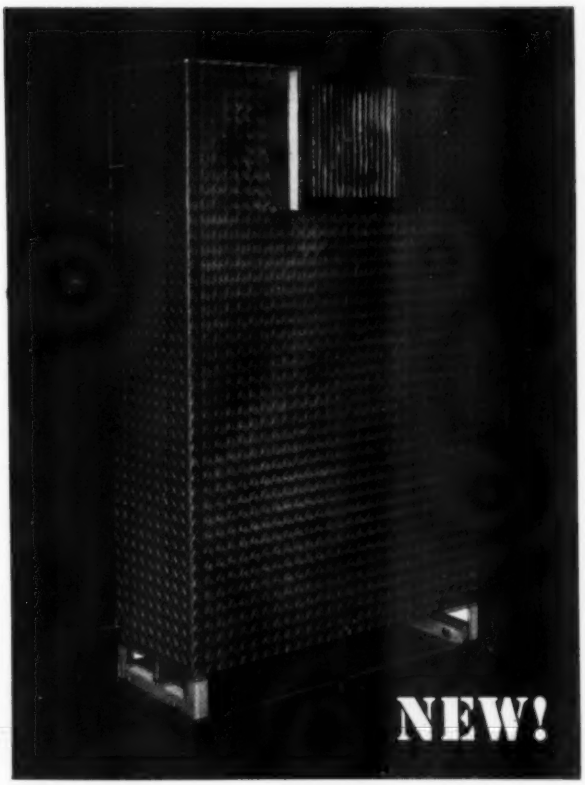
Wednesday, October 27—Warner Theater, 10:00 A.M.

Joint General Session with International Association of Ice Cream Manufacturers.

Wednesday, October 27—Warner Theater, 8:30 P.M.

Gala theater party featuring HERB SHRINER, EARL WRIGHTSON, MIMI BENZELL and others. Tickets required.

Tickets for all events are available at Milk Industry Foundation registration desk at Haddon Hall.



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For All High Temperature Applications

"HOLDOVER FOR STOPOVERS" . . . Affording refrigeration to maintain proper truck body temperature. Now available in models providing partial or complete holdover. Sanitary, compact, light in weight, simple in operation. Easily installed, utilizing a minimum of floor space.

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MANUFACTURERS OF
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JUGS?

Sure—We Wash 'Em!

HALF-GALLONS AND GALLONS

Wash your jugs the easy Girton Way! Regardless of your production, there is a fast, economical Girton Washer to fit your operation and reduce your costs!

The Girton Jug Washer, Model 50SAJ

Available in 3 widths with capacities ranging from 8 to 24 jugs per minute. This machine will wash standard round and square gallon and half gallon jugs. Also rectangular half gallon jugs.

only $994.60 FOB

Girton Pressure Jug Washer Model 503

The Girton Pressure Washer is available in either straight or compartment models. Low cost, fast and efficient!

Send for Bulletin and the name of your nearest Girton Dealer.

GIRTON MANUFACTURING COMPANY
• MILLVILLE, PA.

COMING EVENTS

National Dairy Cattle Congress—Annual Congress, October 2-9 at Waterloo, Iowa.

International Dairy Show—Annual Show, October 9-16 at the Union Stockyards, Chicago, Ill.

National Automatic Merchandising Association—Annual Convention, October 10-13 at Washington, D. C.

North Dakota Dairy Industries—State Convention, October 12-14, Fargo, N. D.

Vermont Dairy Plant Operators and Managers Association—Annual Meeting and Conference, October 13-14 at the University of Vermont, Burlington.

National Association Retail Ice Cream Manufacturers—Annual Meeting, October 20-23 at the Traymore Hotel, Atlantic City.

International Association of Milk & Food Sanitarians—Annual Meeting, October 21 at the Hotel Morton, Atlantic City.

Milk Industry Foundation—Annual Convention, October 24-27 at Chalfonte-Haddon Hall, Atlantic City.

International Association of Ice Cream Manufacturers—Annual Convention, October 27-29 at Atlantic City.

19th Dairy Industries Exposition—Sponsored by Dairy Industries Supply Association, October 25-30 at Convention Hall, Atlantic City.

Iowa Creameries Association, Iowa Milk Drivers Association, and Iowa Creamery Operators Association—Annual Convention, October 29-30 in Cedar Rapids.

Dairy Manufacturers—15th Annual Conference, November 3-4, Michigan State College.

New York State Milk Distributors—Annual Meeting, November 9-10 at Hotel Ten Eyck, Albany.

New York State Dairy Boosters—Annual Meeting, November 9 at Hotel Ten Eyck, Albany.

University of Maryland Dairy Technology Conference—Tenth Annual Conference, November 9-10 at the U. of Maryland, College Park.

Kansas Ice Cream and Milk Institute—Annual Convention, November 28-29 at the Lassen Hotel, Wichita.

Nebraska Dairy Industries Association—First Annual Convention, November 30 and December 1 at the Castle Hotel, Omaha.

Western State Convention—Annual Convention, Colorado Dairy Products Association, December 5-7 at the Cosmopolitan Hotel, Denver, Colo.

Wisconsin Milk Dealers and Ice Cream Manufacturers Association—Annual Meeting, December 7-9 at the Schroeder Hotel, Milwaukee.

Washington State Dairy Foundation and Washington State Dairymen's Association—Annual Convention, December 12-15 at the Olympic Hotel, Seattle.

Illinois Dairy Products Association—Annual Convention, December 13-15 at the Conrad Hilton Hotel, Chicago.

North Carolina Dairy Products Association—Annual Convention, January 13-14, Carolina Hotel, Pinehurst, N. C.

Alabama Dairy Products Association—Annual Convention, January 13-15 at the Whitley Hotel, Montgomery.

Louisiana Dairy Products Association—Annual Convention, January 16-18 at the Jung Hotel, New Orleans.

National Dairy Council—Annual Midwinter Conference, January 24-26 at the LaSalle Hotel, Chicago, Illinois.

Ohio Dairy Products Association—Annual Convention, January 24-26, Netherlands Plaza Hotel, Cincinnati.

Dairy Products Improvement Institute, Inc.—Eighth Annual Meeting, January 27 at the Hotel Commodore, New York City.

University of Maryland Ice Cream Conference—Fifth Annual Conference, January 27 at College Park, Md.

Michigan State College Dairy Engineering Conference—Third Annual Conference, March 8-9 at East Lansing, Mich.

Indiana Dairy Products Association—Annual Convention, March 8-10, at French Lick Springs Hotel, French Lick.

Oregon Dairy Industries Association—44th Annual Convention and Short Course, February 14-17 at Oregon State College, Corvallis.

Wisconsin Dairy Manufacturers—Annual Conference, March 29-30 at the University of Wisconsin, Madison.

Pennsylvania Association of Milk Dealers—Annual Convention, April 27-28, William Penn Hotel, Pittsburgh.

SHORT COURSES

Milk Industry Foundation—1625 Eye St., N. W., Washington 6, D. C.
Sales Training Institutes—October 4-15; November 8-19; November 29-December 11.

Ohio State University—Department of Dairy Technology, Ohio State University, Columbus 10.
Market Milk Short Course—November 8-19. All aspects of handling and processing milk in a market milk plant.
Ice Cream Short Course—January 10-21. All aspects of ice cream processing and manufacture. Plant sanitation, operation and maintenance of equipment.
Dairy Technology Conference—February 8-11. Four-day program emphasizing latest developments important to dairy industry.
Milk Sanitarians Short Course—March 14-18. Arranged cooperatively with Ohio State Department of Health and Ohio State Department of Agriculture, designed for people employed by public health and regulatory agencies and by dairy organizations.

Oklahoma A & M College—Professor H. C. Olson, Dept. of Dairying, Stillwater, Okla.
Dairy Industry Conference—November 3-5. Discussions and demonstrations on the manufacture and handling of major dairy products.

Pennsylvania State College—State College, Pa. Write to D. R. McClay, Director of Short Courses, College of Agriculture, State College.
Ice Cream Course for Dairy Equipment and Supply Men—December 6-11.
Testing Milk, Cream and Dairy Products—January 3-8.
Ice Cream Course for Plant Men—January 10-22.
Market Milk and Milk Supervision—January 24-February 5.

Purdue University—Lafayette, Ind. Prof. V. C. Manhart, Smith Hall.
Dairy Fieldmen's Conference—November 30.
Dairy Plant Operation Conference—December 1.

Texas Technological College—J. J. Willingham, Head, Dept. Dairy Industry, Lubbock.
Short Course—November 17-19. Lectures and demonstrations on milk, cheese, ice cream, etc.

University of Florida—With the assistance of the Florida Dairy Association. Contact Dr. E. L. Fouts, Head, Dept. of Dairy Science, Gainesville.
Dairy Plant Operators—October 14-16.

University of Kentucky—Lexington. Dr. T. R. Freeman, Dairy Section.
Dairy Manufacturing Short Course—November 9-10. Clinics on ice cream, market milk, buttermilk.

University of Maryland—College Park, Md. W. S. Arbuckle, Professor of Dairy Manufacturing.
Sixth Annual Ice Cream Short Course—January 17-27.

University of Wisconsin—Apply to J. Frank Wilkinson, Director, Short Courses, 108 Agricultural Hall, University of Wisconsin, Madison 6.
Buttermaking Short Course, Cheesemaking, Ice Cream, Market Milk, Concentrated Milk Products—October 4-November 13. Students may enroll in only one course.

●

MORE FLEXIBLE MARKETING SYSTEM CALLED FOR

Dean W. I. Myers of the New York State College of Agriculture at Cornell University challenged farmers and farmer cooperatives to get ready for increasingly keen competition under what he described as "reasonably normal conditions for the first time in 15 years." He was addressing the opening general session of the 26th annual American Institute of Cooperation at Cornell University.

Citing milk, he noted, "Consumption has suffered because in many cities milk distribution follows a rigid pat-

The Perfect Package FOR ITS JOB?

Maybe to the hen . . . but not to you—if you want to give your product and your pocketbook *real* protection! BUTLER Straight-Grain Salescartons for Butter, expertly constructed from tough, sturdy board (with the grain running lengthwise for easy, square folding) give their contents *maximum* protection. Designed and manufactured by specialists, their precision performance on your cartoning line will reduce waste and down-time, increase production and lower your cost-per-pound of packaging.

PIONEERS IN CORRECT CARTON CONSTRUCTION

BUTLER Salescartons
STRAIGHT GRAIN FOR BUTTER

THE BUTLER PAPER PRODUCTS COMPANY
TOLEDO 10, OHIO

XUM

tern that does not meet the needs of consumers. If milk is to meet successfully the growing competition with other foods, it will be necessary to provide greater flexibility in the marketing system. Consumers who wish to pay cash and do their own delivery should have the chance to do so at a price which represents the reduction of costs involved."

To meet the needs of modern retail distribution, Dean Myers, who is Chairman of President Eisenhower's National Agricultural Advisory Commission, also suggested integration may be necessary in some cases of local and regional marketing cooperatives into a national organization.

●

NDC TO CELEBRATE 40TH BIRTHDAY

The Fortieth Anniversary of Dairy Council work will be celebrated when the National Dairy Council holds its 40th Annual Meeting in Chicago next January 24-26 at the Hotel La Salle.

Articles of incorporation were approved by the founders of NDC in April 1915.

Since that time, the Dairy Council program has gained and solidified its place on the American scene as a primary fact finding and education organization promoting the nutritional value of dairy foods in the American diet.

In this capacity, Dairy Councils perform the major liaison tasks between the dairy industry and the nutrition research and health leaders to whom consumers look for advice on eating.

Expansion of the Dairy Council movement is sharply indicated by its growth since 1943. Since that time, for example, the number of localized Dairy Council programs affiliated with NDC has grown from 33 Units to 67, and dairy industry financial support for national and local Dairy Council work combined has jumped from $1 million to $3 million annually.

Simply put, Dairy Council efforts are performed at two levels:

1. The National program of nutrition research and education executed by the national office;
2. The localized programs of nutrition education conducted by 67 Dairy Councils affiliated with NDC.

Working together, these two programs contribute a public relations and promotion service to the dairy industry not provided by any other organization. No other food industry in America has the benefit and advantage of such a combination program.

●

NEW FOOD BROKERS APPOINTED BY WISCONSIN CHEESE BOX

Appointment of four new food brokers to increase its retail store coverage for the 1954 Christmas season was announced in September by the Wisconsin Cheese Box, Sturtevant, Wis.

The new brokers are Chester R. Berry, Ryan Hotel, St. Paul, Minn.; A. E. LaFortune, P. O. Box 9056, Tampa, Fla.; James A. Riordan, 5918 Troost St., Kansas City, Mo.; and Sidney Swain, 200 N. Laurel St., Charlotte, N. C.

According to Henry J. Belzer, president of the gift cheese assortment firm, the appointments bring to eight the total number of brokers now representing the company in all parts of the country.

Belzer explained that the appointments mark the Cheese Box's decision to make its gift assortments available to retail food outlets on a wide scale. Previously the assortments were merchandised exclusively by mail since 1939.

●

CONTINENTAL CAN STARTS $2,500 CASH CONTEST

A $2,500 cash-award contest for canned foods merchandising ideas is the latest news on Continental Can Company's Merchandising Program! Food retailers throughout the country will be asked to submit new ideas for pushing canned foods, with 32 money prizes offered as reward.

Continental suggests ideas on such subjects as how to tie canned foods in with seasonal or holiday promotions, tie-in of canned foods with meats, how to introduce a new canned food, or ways to draw customers' attention to canned foods sections. The company says, "it may be a successful promotion you ran a year ago, or last week, or are planning to run in the future . . . it may be an old idea with a new twist."

Cash awards will range from a first prize of $1,000, to a second prize of $500, ten third prizes of $50 and twenty fourth prizes of $25 each. Only people working in retail grocery stores are eligible. Each retail contestant can send in as many entries as he wishes, limited to 200 words each. Entries will be judged by impartial experts from five grocery field trade publications and winners will be notified by mail. Ideas should be sent to MERCHANDISING CONTEST, Box 1724, New York 17, New York. The deadline is November 20, 1954.

●

BORDEN'S DECLARES 10 PER CENT STOCK DIVIDEND

A 10 per cent stock dividend was declared August 31 by the Board of Directors of The Borden Company. The dividend is payable October 11 to stockholders of record September 10. Only two other stock dividends have been declared by Borden's in the past, 3 per cent in 1930 and 1931. Cash dividends totaling $1.80 have been declared so far this year.

"This dividend gives stockholders evidence of their equity in the substantial amount of past earnings retained in the development and growth of the company," Theodore G. Montague, president, told stockholders in announcing the director's action.

No stock certificates will be issued for a fraction of a share. Instead, the holders of a fractional-share interest will have an opportunity to purchase the additional fraction required to make up a full share, or sell their fractional-share interest.

Leaky, sanitary fittings and valves can waste an astonishing amount of milk or cream. As proof — set a water faucet at a slow drip. Place a gallon container under it. You'll be amazed at the very few minutes that elapse until the vessel is filled to the brim. And a similar leak in a sanitary line goes on for hours — every day.

Let A-P-C close-tolerance engineering and superb craftsmanship help you to prevent those costly, profit-robbing leaks in *your* sanitary lines. It's easy to do. Just specify A-P-C.

Visit us at the
DAIRY INDUSTRIES EXPOSITION
Booth A-4
MAIN FLOOR — CONVENTION HALL
OCTOBER 25-30 INCLUSIVE

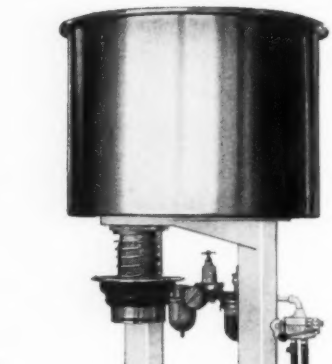
ALLOY PRODUCTS CORP.
1065 PERKINS AVENUE • WAUKESHA, WISCONSIN

Fort Wayne Can Filler

AIR OPERATED

APPROVED METHOD OF FILLING

CLEAN FAST FILLING



FILLS 5, 8 AND 10 GALLON CANS WITH 6⅛" OR 7¼" NECKS

UNILEVEL DRIP PROOF VALVE — FILLS ALL CANS TO THE SAME LEVEL

STAINLESS STEEL FLOAT INLET VALVE — DISCHARGES AT THE BOTTOM OF THE TANK TO PREVENT FOAMING

SIMPLE — RUGGED — EASY TO CLEAN AND OPERATE

Booth C-11 -:- Atlantic City

Manufactured By

Fort Wayne Dairy Equipment Co.

Winter Street and Wabash Railroad
Fort Wayne, Ind.

ESTABLISHED 1906

FORTY MAJOR FIRMS TEAM UP FOR CHEESE FESTIVAL

Forty major cheese and related food companies are cooperating with the sponsors of the October Cheese Festival this year to give cheese its greatest sales push in America's top food selling campaign.

The Cheese Festival, now in its ninth year, is under the joint sponsorship of the American Dairy Association and the National Cheese Institute.

Recognized as one of the most extensive food promotions conducted annually in this country, the Cheese Festival involves total expenditures by the industry of over two million dollars.

The promotion is spearheaded by the advertising, merchandising, and publicity program of the nation's dairy farmers' organization, the American Dairy Association, in cooperation with cheese manufacturers, distributors, packers, independent grocers, food chains, and related food manufacturers.

The list of organizations cooperating in the 1954 Festival includes: Armour & Company, Blue Moon Foods, Inc., Borden Cheese Company, Fairmont Foods Company, Kaukauna Dairy Company, Kraft Foods Company, Pauly Cheese Company, Purity Cheese Company, Swift & Company, Wilson and Company, Stella Cheese Company, C. E. Zuercher and Company, Detroit Cheese Company, Anheuser-Busch, Inc., Blatz Brewing Company.

California Packing Corporation, Campbell Soup Company, Coca-Cola Company, Creamette Company, Dole Sales Company, Charles E. Hires Company, George A. Hormel & Company, International Milling Company, International Apple Association, C. H. Musselman Company, National Biscuit Company, National Macaroni Institute.

National Pickle Packers Association, Nicolay-Dancey, Inc., Pabst Brewing Company, Ralston Purina Company, Sunshine Biscuit Company, Washington State Apple Commission, Miller Brewing Company, Jax Brewing Company, Cudahy Packing Company, Knox Gelatine Company, Olive Advisory Board, Pineapple Growers Association, and the American Bakers Association.

●

MILK SALES CLIMB IN PENTAGON

Employees in the nation's largest office building—the Defense Department's Pentagon in Washington, D. C.—drank an average of 10 per cent more milk in June than in May of this year, according to a survey made by the U. S. Department of Agriculture in connection with the dairy industry's milk merchandising campaign in June. Normally sales of milk in Pentagon restaurants are higher in May than in June.

The promotion of larger milk sales at the Pentagon restaurants was part of an industry-sponsored nationwide campaign to increase sales of milk and milk products throughout the month of June. Dairy producers, processors, distributors, equipment suppliers, and other allied groups with the cooperation of all segments of the food processing, food service, and food distribution industries engaged in an all-out selling effort. The USDA gave its full support to this industry-sponsored program to encourage market

stability in the vital dairy industry by stimulating increased consumption of milk and milk products.

The promotion campaign at the Pentagon restaurants was conducted in cooperation with the local milk producer's association, and was made with the fullest cooperation of the operators of the restaurants.

The Pentagon restaurants are the largest single food-serving operation in the world. The system comprises six cafeteria units, nine beverage bars, two dining rooms, and an outdoor beverage bar in the five-acre center court. Approximately 4,000 customers can be seated in the cafeterias at one time, with one central production kitchen and bakery supplying all units.

All sales of milk are made in cartons from counters. Sales of pint and half-pint cartons of milk averaged about 8,000 units daily. Posters and table tents were used in cafeterias and on serving counters to further the campaign. Menus in the dining room carried a printed reminder that June is dairy month.

The local milk producers' association furnished the posters and table tents which emphasized health factors of milk.

The largest increase, percentage-wise, in sales of fluid milk during June as compared with May occurred in pint purchases of chocolate drink, followed by half-pint purchases of milk. Buttermilk both in the pint and half-pint sizes, also recorded sales gains in June.

●

GETS PERFECT SCORE ON CHEESE

At the Gouverneur and St. Lawrence County Fair, an entry of processed cheese by the McCadam Cheese Co., Ogdensburg, was scored 100. It was so rated by three official judges working independently. When this occurs dairy specialists agree that the product is entitled to a perfect score.

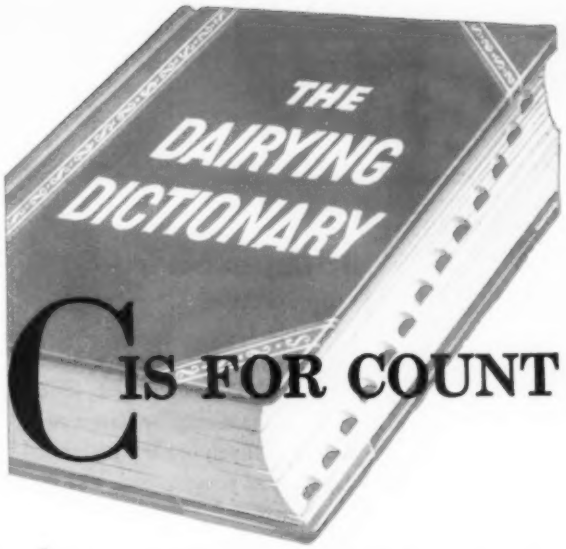
During the past 35 years, four dairy products in competition have been rated perfect. A bottle of milk in California, one in New York State, a natural cheddar cheese in Wisconsin and the McCadam processed cheese, which was not only without a defect but had a very fine New York State Cheese flavor. All dairy products are judged by their flavor, texture, color and package. The processed cheese was judged by George Bench, Ogdensburg, Deforest May, Springwater and Jules Marquardt, Geneva.

An attractive exhibit of Italian cheese by Aiello Bros., Heuvelton, was awarded a first prize. The entry presented Riccotta, Mozzaulla, and braided cheese made by methods involving the latest knowledge of cheese making along with an art that is centuries old.

Cottage and Cream Cheese highest awards were made to the Sodus Creamery Corp., Wolcott, N. Y.

The six hard cheese classes are still being judged under the direction of Clarence Kelsey, Copenhagen, with George Bench and Michael Roman, Lewville, assisting.

Likewise there are no results available in the Milk and Creams Contest which is under the direction of Michael Roman and Deforest May. Results in this competition are delayed because tests requiring 48 hours must be made.



A low bacteria count is an absolute must for top quality milk. Your producers may have the most modern dairy equipment and feed the finest feed to the best herds in the county. BUT their—and your—milk will not bring top prices unless it has a low bacteria count.

So safeguard top profits for both you and your producers. Urge them to use Lo-Bax chlorine rinse solutions to sanitize cans, utensils and other equipment as well as cows' teats and udders.

But don't stop there. Use Lo-Bax chlorine rinse solutions on your own plant milk equipment to keep bacteria counts down while milk is being processed. You will find the positive, fast-killing action of Lo-Bax affords maximum protection at minimum cost.

LO-BAX CHLORINE BACTERICIDES

available with or without a wetting agent

LoBax-21—Chlorine with a wetting agent where extra penetrating action aids faster bacteria kill. Rinses freely. Exceptionally smooth and easy on milkers' hands and cows' sensitive teats and udders.

Lo-Bax Special—Contains 50% available chlorine in dry, free-flowing form. Dissolves quickly in water, hard or soft, hot or cold, to make clear, fast-killing rinse solutions. Harmless to cows' udders and milkers' hands.

Get these Lo-Bax Chlorine Bactericides from your supply house today.

Economical bottle-washer water chlorination.
HTH TABLETS **and the**
HTH TABLET HYPOCHLORINATOR
WRITE FOR COMPLETE INFORMATION

OLIN MATHIESON CHEMICAL CORPORATION
INDUSTRIAL CHEMICALS DIVISION
MATHIESON *Baltimore 3, Maryland*

FREE!

SERVICE CAP

Paperlynen Caps are ADJUSTABLE to any headsize. Insure perfect fit. Light and comfortable. More ECONOMICAL. Reduce your present Cap expense by 50%. Distinctive with your special imprint. Millions used annually by nationally known companies. Just mail coupon below with manager's signature and we will send you absolutely **FREE**, a Patented Adjustable Paperlynen Service Cap.

PAPERLYNEN COMPANY
555 West Goodale St., Dept. E-10, Columbus, Ohio

Please send absolutely FREE, a Patented Adjustable Paperlynen Cap.

Firm Name_____

Address_____

City_____ State_____

Signature of Manager_____

Name of Paper Jobber most frequently patronized:

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Why invite trouble?

The tiny bit of wire used to seal each milk carton is a small item. Why chance an interruption and delays by using anything but the best?

WILSTITCH
gives you

- Dimensional accuracy
- Proper temper
- Prompt delivery
- Your choice of Tinned, Galvanized or Liquored Finishes

IMMEDIATELY AVAILABLE IN 20, 21 AND 23 GAUGES

WRITE FOR COMPLETE INFORMATION

WILSON STEEL & WIRE COMPANY
4848 S. WESTERN AVENUE • CHICAGO 9, ILLINOIS

HOPALONG CASSIDY ENDORSEMENTS AVAILABLE

A program for endorsements from Hopalong Cassidy for packaged dairy and ice cream products on an exclusive sales area basis is now available to customers of the Lily-Tulip Cup Corporation.

In announcing the tie-in program, Lily noted that nearly 40 major dairies in the south and mid-west are already participating.

The Hopalong endorsement can be used on all Lily dairy and ice cream containers and cups. Under the program, Lily pointed out, the user's trade name remains spotlighted so that the company retains local identity while at the same time getting the benefits of Hopalong's nationwide popularity.

Companies signing Hopalong contracts for containers are permitted to use his name in all forms of advertising and promotion. Application forms for the program, which is controlled by Franchise Marketers, Inc., owners of the Hopalong name rights, may be obtained from all Lily salesmen.

●

MEDICAL MAN ADVISES MORE MILK FOR CHILDREN

A quart of milk each day from infancy to ten years of age can be considered beneficial for the normal child, according to Dr. James R. Wilson, Secretary of the Council on Foods and Nutrition of the American Medical Association. The teenager can benefit from an even greater daily milk intake.

Dr. Wilson urges parents to realize the value of milk to their children but not to expect milk to provide everything a child needs from food. He states, "the child who does not eat other needed basic foods along with the recommended amount of milk will suffer nutritional deficiencies. Children and adults need the nutrients and bulk provided by other good foods, as well as the nutrients found so generously in milk."

In discussing the proper role of milk in the diets of small children, Dr. Wilson quoted from the writings of the late Dr. P. C. Jeans, eminent pediatrician and nutrition authority.

"Milk (our most important source of calcium) should not be considered solely as a source of calcium. It contributes most importantly to the requirement of protein, as well as other essentials.

High Protein Requirement

"During the period (from one to six years of age) when the calcium requirement is lowest, the requirement for protein is high. Consequently, it seems preferable to advise at least 1½ pints of milk after the period of infancy and up to the age of 10 years. The taking of a full quart of milk throughout this period can be considered only as beneficial, provided the larger quantity does not crowd from the diet other essential foods.

"The fear of belief that the larger quantity may have this effect is widely prevalent, but not too well founded, especially for those children who have normal appetites.

"A quart of milk daily supplies most of the protein need of the young child and half the need at the beginning

of adolescence. Such a quantity of milk contributes more protein to the diet than any other single food. When milk is excluded from the diet, the protein requirement of the child can be met only if special and expert supervision is given."

If a child is rejecting other foods in favor of drinking milk, Dr. Wilson calls upon the mother to use her genius as a cook to solve the problem. Simply taking the milk away will not solve the problem. In fact, he says, this can be a serious error. He suggests limiting the amount of milk the child is given to drink and enriching the taste of other foods by adding to them portions of the remainder of the milk each child should have each day.

According to Dr. Wilson, "A clever cook can combine milk or cheese with almost any food in a wide variety of appealing dishes. By providing some of these dishes, the child who favors milk over other foods can be taught to accept them through combination with milk. It is equally possible, when a child rejects milk, to increase his acceptance of it in this manner."

●

NEW PURE-PAK PLANT IN MINNEAPOLIS

The Minnesota-Wisconsin area will be served in the near future by a new plant manufacturing Pure-Pak paper milk containers, it was announced today by C. S. Edgar, General Manager, Single Service Division, International Paper Company,

To be located on new U. S. Highway 55 in the Golden Valley area of Minneapolis, the new unit will consist of 64,000 square feet and will have a rated monthly capacity of approximately 40,000,000 paper milk containers of all sizes. The converting plant will be on a 26-acre site adjacent to the right-of-way of the Minneapolis, Northfield and Southern Railway.

Mr. Edgar said today that he expects that about 100 men and women will be employed at the new plant when it is in full operation. Construction is scheduled to begin in July and it is expected that production of Pure-Pak milk containers will begin about March 1st, 1955.

Manager of the new plant will be G. A. Husnick, who is widely known in the dairy industry in this area. He has been with International Paper since 1949.

●

BOWMAN PROMOTES TWO MEN

Bowman Dairy Company, Chicago, Ill., has recently announced two changes in its supervisory staff. Albert E. Geiss, 411 Edgewood Ave., La Grange Park, Ill., has been promoted to Production Manager. Geiss was employed by the dairy company in 1946 as an engineer. He later was associated with the Production, and Industrial Research Departments.

Owen H. Paddock, 1435 Bonnie Brae, River Forest, Ill., formerly General Supervisor of Bowman's Fluid Milk Plants, has been named Director of Fluid Milk Plants and Production. Paddock has been in plant work since he joined the company in 1916 as manager of the Wauconda, Ill., receiving station.

In 1954 . . . as for the past
50 Years
DEKALB
OFFERS YOU THE FINEST!!

. . . in construction!
DEKALB'S Jig-Built construction methods feature tubular steel frames welded in a jig as a unit. Greater lasting strength—no bolts to loosen!

. . . in safety!
DEKALB offers balanced loading and sturdy construction coupled with a choice of two safe and efficient automatic drive controls. STAND-O-MATIC-DRIVE for use with automatic drives and STEP-GO-STAND-DRIVE for use with standard transmissions.

. . . in refrigeration!
DEKALB Refrigerated Bodies are available for all flat-face cowl, forward control and van bodies with several makes and styles of refrigeration to choose from.

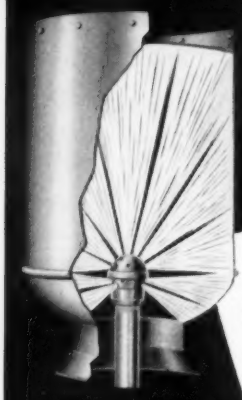
. . . in completeness of line!
No other body manufacturer offers greater versatility in a body line. Choice of Panelette and Panelette Jr., Creamliner, Urbanette, Parcel Delivery, 10 and 12 foot Panel and Van.

AMERICA'S FINEST PRODUCTS ARE DELIVERED IN AMERICA'S FINEST BODIES . . . DEKALB

YOUR COPY OF THE NEW DAIRY BULLETIN IS NOW READY!

DEKALB
COMMERCIAL BODY CORPORATION
217 W. GARDEN ST., DEKALB, ILL.
SEE BOOTH W-11 AT THE DAIRY SHOW

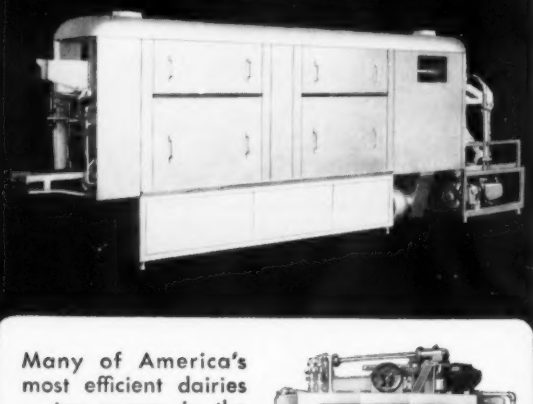
RISING JETS



Rise 6½ inches up into can.

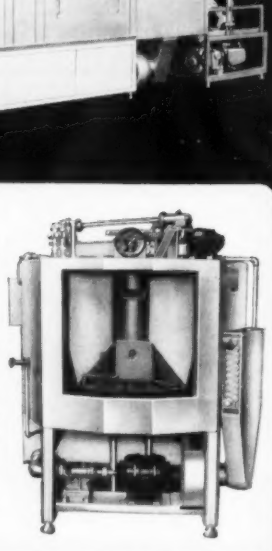
26 Jet outlets in continuous operation during movement into and out of the can.

PROVIDE CLEANER CANS



Many of America's most efficient dairies — top names in the field—have standardized on Rice & Adams Can Washers because they get cans cleaner and are so well built that they give many more years of trouble-free operation.

Write for full details.



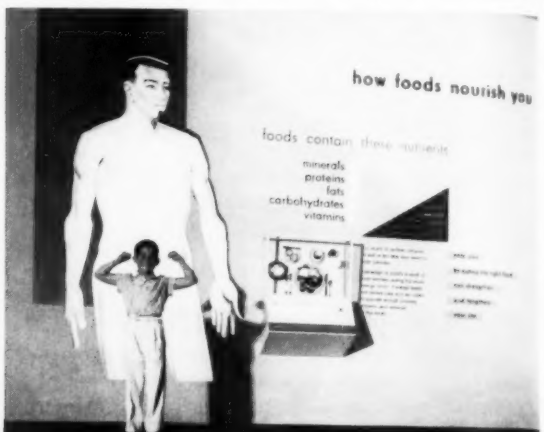
R&A RICE & ADAMS Division
W-P EQUIPMENT CORP.
16 Forest Avenue Buffalo 17, New York

NUTRITION EXHIBIT IN CHICAGO MUSEUM

The importance of milk and milk products in balanced diets for health and happiness is told in the new "Food for Life" exhibit now open at the Museum of Science and Industry in Chicago.

The nutrition exhibit tells museum visitors how to eat nutritionally balanced meals and describes the benefits of them.

All types of food are featured in the exhibit which outlines the basic story of nutrition from soil, through plants and livestock to man. The major sections are devoted to the role of agriculture, the food processing, and the wholesale and retail distributing industries in providing nutritious foods.



Jim Ballard, 6, of Hernando, Mississippi, compares his muscles with 9-foot man in "Food for Life," exhibit at Chicago's Museum of Science and Industry. With the pressing of a button the "man" changes to show the effect of various important food elements on different parts of the body.

Milk, ice cream, cheeses and other milk products are one of the seven basic food groups needed for nutrition. In table settings, other pictures and animated sections of the exhibit, viewers are made aware of the place of these foods in the human diet.

There are also living examples of good nutrition in the Food for Life" exhibit. An animal nursery containing well-fed baby pigs, lambs, and ducklings cavorting in pens is the appealing climax to the nutrition story. And too, a glass-enclosed incubator enables viewers to witness baby chicks pecking their way out of the eggs.

●

McHALE STEPS UP PRODUCTION OF FARM TANKS

The McHale Manufacturing Company, close on the heels of their merger with the Houston Fearless Corporation of Los Angeles, has announced the appointment of a new sales manager K. R. Morrison, formerly sales manager of Solar-Sturges.

McHale has long been recognized by the dairy industry as one of the pioneers of the modern farm tank, and is now launching the largest mass production of tanks in its history.

The McHale-Houston Fearless merger appeared to be a "natural" for success in the farm tank field, with

McHale's many years of "know-how" in the dairy industry, and Houston Fearless' well established leadership in refrigeration and stainless steel products. And Mr. Morrison's experience should make this effort even more sure of success.

Concerning the new activity underway at McHale, Morrison pointed out that McHale's new "Californian" farm tank series, features both integrated and remote refrigerated units.

He credited success of this latest addition to the newly-expanded McHale production department. Thousands of square feet of factory space have been added, along with much new equipment. The McHale Machine Shop is now one of the best equipped in Southern California.

It is reported that the recent merger makes McHale and Houston Fearless Corporation the largest commercial purchasers of stainless steel on the Pacific Coast, since both companies were leaders in stainless steel fabrication before the merger.

●

NATIONAL GRANGE HEAD CALLS FOR RESEARCH PROGRAM

Farm price supports are not the whole answer to the food problems of a growing nation, warns Herschel D. Newsom, master of the National Grange, in the current issue of the American Chemical Society's *Journal of Agricultural and Food Chemistry*.

Price supports "in some form or other" may have their place, Mr. Newsom emphasizes, but there is urgent need for a new approach to the whole question which, through increased agricultural research and education, will boost productivity to meet long-range requirements.

Calling upon the Federal government to spend more money on such a long-range program, Mr. Newsom says:

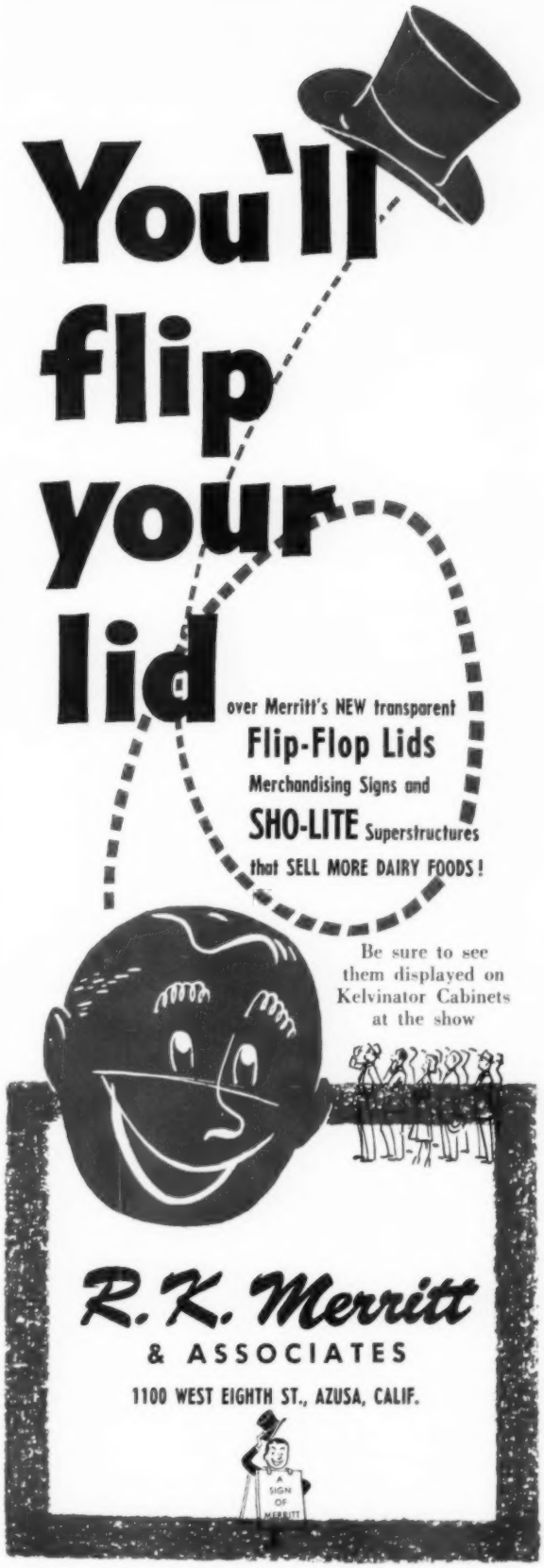
"The laboratory, the test plot, the microscope, and our incessant search for knowledge must become an accepted basic urge that demands universal attention and support."

Price supports must also be used, states Mr. Newsom, to enable agriculture to shift from a war-time level of production to peace-time requirements without having to suffer a period of severe deflation. This, he declares, is in the national interest.

The cheapest money that we can now spend is for research and education in agriculture, he comments.

There is a group—about one-half of our farmers—that requires special attention, according to Mr. Newsom. This 50 per cent produces only 10 per cent of our total food and fiber. Price supports mean little to this group, he observes, for high prices on a low volume of output still mean a low income. The basic problem is to find economical ways for these farmers to become more productive.

The farmers have no way of pooling their funds to support research and education except through the government. The government route to these ends is basically sound, says Mr. Newsom, and much public urging is necessary to expand government support. The consumer benefits at least as much as the farmer, he points out.


You'll flip your lid
over Merritt's NEW transparent
Flip-Flop Lids
Merchandising Signs and
SHO-LITE Superstructures
that SELL MORE DAIRY FOODS!
Be sure to see them displayed on Kelvinator Cabinets at the show
R. K. Merritt
& ASSOCIATES
1100 WEST EIGHTH ST., AZUSA, CALIF.
A SIGN OF MERRITT

Would You Like These COLORFUL
THE ORIGINAL
COUPETTES
IN 8 CONTINENTAL COLORS
$ TRIPLE SALE $
Cottage Cheese Promotion...
The air-tite cover and tip-proof saucer of these functional COUPETTES make them ideal for cold food storage, for snacks, for mealtime, for dozens of uses in the kitchen, on the table.
Any COUPETTES that you do not sell may be returned for full refund.
STYRON
Re-usuable for SALADS, DESSERTS, CANDIES, FRUITS, ETC.
WRITE—RIGHT NOW!
AMES-BELL
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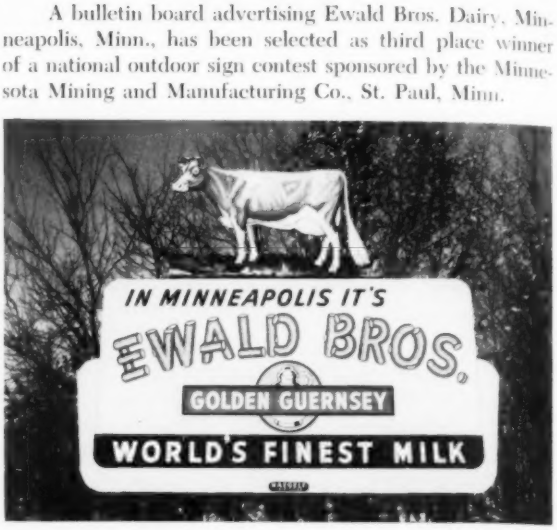
Long Island City
New York
Snap-on Cover . . . It's Airtight!
Snap-on Saucer . . . It's Tip-proof!

HERE'S A CHOCOLATE MILK WITH Real CHOCOLATE FLAVOR!
Yes . . . it's made with one of the FORBES Chocolate Flavor Powders.
Write or wire for a FREE sample and compare it — or better still, send us a trial order.
Forbes
The BENJAMIN P. FORBES CO.
2000 WEST 14th ST. • CLEVELAND 13, OHIO

EWALD BROTHERS WINS SPOT IN AD CONTEST

A bulletin board advertising Ewald Bros. Dairy, Minneapolis, Minn., has been selected as third place winner of a national outdoor sign contest sponsored by the Minnesota Mining and Manufacturing Co., St. Paul, Minn.



The contest was for signs surfaced with "Scotchlite" brand reflective sheeting which makes them brightly visible at night under automobile headlights. Entries were divided into two groups: signs from 25 to 250 square feet, and signs larger than 250 square feet. The Ewald company's sign was in the smaller sign group. Naegle Advertising Co., Minneapolis—producer of the Ewald sign—was awarded third place $200.

Other winning signs in this group included Schuler's Restaurant, Marshall, Mich., first place, $500; Merril Y. Landis Awnings and Blinds Co., Souderton, Pa., second place, $300; Chinook Hotel, Yakima, Wash., fourth place $100. Honorable mention awards include Idaho Creameries, Boise, Idaho; Crystal Dairy, Marietta, Ohio.

●

KLENZADE TECHNICAL LIBRARY MADE AVAILABLE TO DAIRY INDUSTRY

For many years, Klenzade Products, Inc., Beloit, Wis., has maintained a Technical Reference Library for Klenzade staff and field representatives. A vast amount of technical literature has been assembled on various specific cleaning and sanitizing tasks in the dairy industry. In addition to the many technical articles and bulletins prepared by the Klenzade Research Staff, the library material has also been supplemented by hundreds of technical papers presented at the various Klenzade Annual Seminars over a period of the past few years.

The Klenzade Technical Library probably represents the largest and most important assemblage of cleaning and sanitizing data ever accumulated in the dairy industry. Now, this storehouse of knowledge is being made available to the industry, without charge, through the convenient use of Klenzade Library Cards.

Readers may obtain a free Klenzade Technical Library Card and check the various subjects in which they are interested. The company will then send all available data on the subjects checked without cost or obligation. A few of the representative classifications are: Chemistry of Sanitizers, Chemistry of Corrosion, Bacteri-

ology—Comparison of Bactericides, Bulk Milk Handling, Parlor and Pipeline Milking Systems, Treatment of Plant Water Supplies, Can Washing, Bottle Chlorination, In-Place Cleaning Methods, Cleaning High Temperature Equipment, Dairy Waste Disposal, and Mold Control.

Free Klenzade Technical Library Cards may be obtained from the home office, Klenzade Products, Inc., Beloit, Wis., or from any of the many Klenzade branch offices throughout the country, or from your local Klenzade representative. Arrangements have also been made for Dairy Show visitors to obtain Klenzade Technical Library Cards at Klenzade booth number 402, Dairy Exposition, Atlantic City, October 25-30. Cards may be checked at the booth and the literature will be mailed.

●

DISCUSS COORDINATION OF DAIRY, BAKING INDUSTRIES

Methods for bringing more closely co-ordinated activity between the baking industry and the dairy industry were discussed in Chicago recently at a meeting of the Baker-Dairy Committee, composed of members of the American Bakers Association and the American Dry Milk Institute.

L. E. Caster, Keig-Stevens Co., Rockford, Ill., chairman of the American Institute of Baking, and B. F. Beach, Michigan Producers Dairy Co., Adrian, Mich., are co-chairmen of the committee.

Discussions centered primarily around the need for co-operative action on educational and nutritional material, to insure that full recognition is given to the importance of both bread and milk in reducing, normal and specialized diets.

The committee recommended that contact be made with national organizations in the dairy industry, to discuss possible activities which can be of mutual benefit. Representatives of the ABA, ADMI, the American Institute of Baking and the Bakers of America Program were instructed to proceed with arranging for such meetings and to report on specific plans developed at a future date.

Noting the bread is the greatest single user of non-fat milk solids, the committee emphasized that mutually beneficial results can logically develop from any joint activity in line with current promotional work being conducted by segments of the dairy industry and the baking industry.

Attending the meeting, held at the American Institute of Baking, were: Wendell Fish, Federal Bakery Co., Winona, Minn.; William E. Maier, Maier's Bakery, Reading, Pa.; Charles J. Regan, Interstate Bakeries Corp., Chicago; Joseph M. Tombers, American Bakeries Co., Minneapolis; R. M. Hadrath, Maple Island, Inc., Stillwater, Minn.; George Pedersen, Twin City Milk Producers Association, St. Paul; Willis S. Foster, Bowman Dairy Co., Chicago; M. L. Totten, Land O' Lakes Creameries, Minneapolis; E. E. Kelley, Jr., President, and Harold Fiedler, Secretary of ABA; Howard O. Hunter, President and William Bradley, scientific director, of AIB; B. W. Fairbanks, director, and C. A. McDuffee, in charge of bakery service of ADMI; and D. E. McFadden, Bakers of America Program.

DID YOU KNOW?

SOLAR-STURGES
has never missed a
D.I.S.A. Show

One of the oldest firms in the Dairy Supply Field—since 1865—Solar-Sturges will be in

Booth 415

with a bigger and better line of Dairy Equipment.

On display will be the unrivaled SOLAR FARM HOLDING TANKS which incorporate the finest engineering principles in the field—the complete Solar-Sturges line of MILK CANS, STRAINERS, STIRRERS, and SAMPLERS—and the newest concept of sanitary waste disposal, the NEW SOLAR JET.

SOLAR-STURGES MFG. DIV.
Pressed Steel Car Company, Inc.
Chicago, Illinois

LOGARITHMIC AVERAGES OF THE NUMBER OF COLONIES DEVELOPING PER 2¼" x 2½" PANEL AFTER A STANDARD WASHING PROCEDURE

L. J. HANSEN AND W. C. WINDER, *University of Wisconsin*

Considerably Tarnished Tin	Slightly Tarnished Tin	No. 4 Stainless Steel	No. 6 Stainless Steel	New Tin	No. 8 Stainless Steel	No. 7 S. S.	No. 1 S. S.	No. 2B S. S.
16.60	29.51	33.88	47.86	48.98	60.28	69.18	199.5	299.1
Most Easily Cleaned							Most Difficult to Clean	

The above groupings were made on the basis of calculations by Duncan's Method (Virg. Journ. Sci. 2: 171, 1954) for ranked group means.

STAINLESS STEEL

(Continued from Page 78)

allow cleaning solutions to get in and clean. On finer finishes the grooves are smaller and cleaning is less effective. The above table developed by L. J. Hansen and W. C. Winder of the Department of Dairy and Food Industries at the University of Wisconsin shows this very clearly.

Despite these excellent qualities, stainless steel does have its limitations. Perhaps the most important thing to remember is that stainless steel is not corrosion-proof, it is corrosion resistant. Under the proper circumstances it is subject to corrosion. Many milk processors have been surprised to find that stainless steel will corrode if the environment is favorable. The principal maintenance job with stainless steel equipment is, therefore, to see that a favorable environment for corrosion does not exist.

For many reasons stainless steel is the most nearly perfect metal yet devised for handling milk. Its high polishability gives it a very sanitary surface. Because it is corrosion resistant, this surface will remain smooth. It can be readily made into desired shapes and joined together by welding. It does not impart any flavor to the milk with which it comes in contact. It is tough and will stand up under the heavy wear and tear of dairy plant usage. It requires no protective coating. These attributes are what make this metal so widely used in the modern dairy industry.

H. L. Mitten, writing in the February, 1954 issue of the *American Milk Review* discusses the question of corrosion quite thoroughly. Two principle causes of corrosion, he finds, are chlorine solutions allowed to remain on the surface of the metal too long, and other metal objects in contact with the stainless steel long enough to set up a corrosive electrolytic action.

Detailed procedures for cleaning and maintaining stainless steel equipment have been developed by the Technical Committee of the Dairy Industries Supply Association in cooperation with producers and fabricators of stainless steel. These recommended procedures are printed below.

(Taken from Stainless Steel in the Food and Processing Industries published by U. S. Steel.)

Emphasize Regular Clipping for the production of clean milk

Sunbeam
STEWART
ELECTRIC
CLIPMASTER

Powerful motor inside the handle

Here's what authorities say:

National Dairies—*"Clipping udders and flanks is the first step in clean milk production."*
Univ. of Wisconsin—*"Clipping saves time when preparing udders for milking."*
Oregon State College—*"Dirty cows will mean dirty milk. Keep the hair clipped short on the udder, legs and flanks at all times."*

Leading Health authorities say: "A regular clipping program means more wholesome milk and increased profits for everyone. It is an essential step in the production of quality dairy products." Clipping reduces sediment, lowers bacteria, avoids contamination and helps in the control of lice, ticks, etc., which greatly affect milk production. Encourage this good dairy management practice. Write for free educational helps available to dairy companies interested in promoting the practice of clipping among their patrons.

Sunbeam CORPORATION (formerly Chicago Flexible Shaft Co.)
Dept. 122 —5600 West Roosevelt Road, Chicago 50, Illinois

NEW STOELTING COTTAGE CHEESE SPRAY VAT

Controlled Low Heat Preserves Curd Texture

★ *Pressure Circulated Water*
★ *Non-Clogging Spray Vents*

An important advance in producing tender curd cottage cheese with controlled low heat. Uniformly heated water is forced through non-clogging spray vents properly spaced along both sides of the full length of the vat. Bottom of liner is flooded at all times. Large volume of rapidly moving water accelerates heat transfer in heating or cooling. No time-lag in getting water from head to end resulting in heat or cold equalization over entire vat area. Setting temperature and cooking may be held to 135° F. instead of the usual 175° or 180°. Automatic temperature regulator optional. Get the complete facts now . . . how you can produce superior tender-curd cottage cheese with this new outstanding Stoelting Vat . . . more features . . . more conveniences.

STOELTING BROTHERS CO.
KIEL -:- WISCONSIN

CLEANING, STERILIZING AND MAINTAINING STAINLESS STEEL EQUIPMENT

Cleaning

Immediately after emptying, rinse thoroughly with clean, COLD water so as to remove as much of any adhering material as possible before it dries. Continue to rinse the vat until its walls are cooled down. Keep covers closed after rinsing until ready to clean.

Clean with warm water and any commercial dairy cleaner (recommended by its manufacturer for use with stainless steel) brushing all surfaces thoroughly to remove ALL adhering materials. This is important as an adhering particle if allowed to remain any appreciable length of time may cause a pit to develop beneath it due to electrolytic action.

Stubborn adhering material may be removed with a stainless steel sponge or wool which is obtainable from any supply house. Do not use ORDINARY STEEL wool as particles of the steel will rust on the surface of the stainless equipment.

Wash thoroughly with hot water after cleaning and allow equipment to dry.

Sterilization

should be carried out *just before the equipment is to be used.* Heat sterilization is most easily accomplished by filling with water maintained at a temperature 170 to 180 degrees F. for five minutes. A steam hose may be suspended in the water, but extreme care must be used so steam will not play directly on vat walls or bottom as this will cause localized overheating with consequent distortion or strain. Heat sterilization may also be accomplished by live steam for five minutes but for the same reason do not allow steam to strike directly on walls or bottom, keeping end of steam hose at least 18 inches away.

Chemical sterilization with a solution of chlorine or other germicidal agent is to be preferred particularly on storage tanks. Concentrations up to 200 parts per million of free chlorine are considered adequate. One much used regulation is that the excess which runs off or collects in equipment must test 50 parts per million. These solutions brushed or sprayed on all parts MUST NOT BE ALLOWED TO REMAIN in contact with stainless steel over two or three hours otherwise pitting and corrosion of the surface will result. If equipment is not used promptly after sterilizing, flush thoroughly with clean cold water.

Don'ts

1. Don't use steel wool, particles of which break off and become embedded in the stainless steel.
2. Don't use a water supply having iron, salt, or sulphur content.
3. Don't allow chemical sterilizers, alkalies, or cleansers to remain too long on equipment.
4. Don't allow particles of foreign matter to adhere to equipment.
5. Don't allow rubber protective items which are fitted over stainless steel surfaces, to remain on such surfaces for any length of time, for this would exclude air and prevent the surface from drying out.

When Your Carton is GAYLORD her answer is "Yes!"

In self-service, your brand is just one of many—all competing for the lady's favor.

Success belongs to the product that's dressed to catch the lady's fancy—in a carton that appeals to the shopper's eye . . . gives promise of satisfaction . . . virtually asks for the sale.

See Gaylord for cartons that make customers answer "YES" to your product's invitation. Also investigate Gaylord's designing service.

GAYLORD CONTAINER CORPORATION

General Offices: SAINT LOUIS

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FOLDING CARTONS
CORRUGATED AND SOLID FIBRE BOXES • KRAFT BAGS AND SACKS
KRAFT PAPER AND SPECIALTIES

In Buttermilk...

FLAVOR COMES FIRST!

RICH, UNIFORM FLAVOR WILL INCREASE YOUR SALES!

. . . to be sure of that good, rich, old-fashioned churn-fresh flavor EVERY DAY . . . use

Chumlea's

NEW and ORIGINAL

CHURN FLAVOR

(STARTER ACTIVATOR)

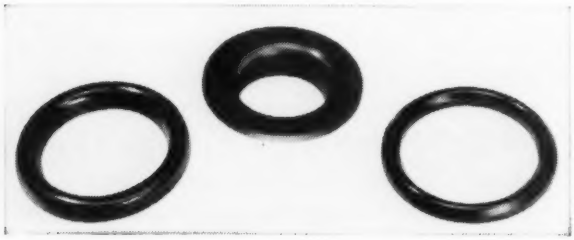
Free Sample Upon Request

CHUMLEA'S LABORATORIES

LEBANON, INDIANA

Plunger Packing

for Homogenizers and Viscolizers



Top grain leather and neoprene Plunger Packings . . . V type, U type and Hat type for all popular makes of Homogenizers and Viscolizers. Finest quality packings at reasonable prices. Ask your Dairy Jobber for E-MAC packings or write direct for samples and prices giving size and style. Jobber inquiries invited.

E-Mac **DAIRY BRUSH CO., INC.**
READING • PENNSYLVANIA

6. Don't allow wrenches, sanitary fittings, or other dissimilar metal parts to lay on stainless steel surfaces which remain wet.
7. Don't close the covers of a tank after steaming unless a vent is provided to avoid creating a vacuum which might result in collapse of the tank.
8. Don't apply air or steam pressure unless equipment is specifically designed for such pressures.

Rust, discoloration, or pitting may result from any one of the first six causes listed above.

Polishing

Polishing rusty, discolored, or pitted area should be done immediately, thus preventing the condition from progressing. This can be done in most cases by using a damp cloth and a commercial scouring powder such as Bon Ami, Dutch Cleanser, etc. Tartaric Acid may also be used as a cleanser, after which the metal should be rinsed with warm water and dried thoroughly. For more stubborn cases other materials and methods are available. Write to the manufacturer of the equipment involved for full information.

When brine is used as a refrigerant in stainless steel cooling units, care should be exercised to maintain the solution neutral or slightly alkaline. The use of an inhibitor such as propolyne glycol has been found helpful in preventing corrosive attack.

One of the large manufacturers of stainless steel equipment issues the following instructions regarding prevention of corrosion where cooling brines are used.

"Brines commonly used for refrigerating purposes have a moderate corrosive effect upon metals and the use of a retarder is generally recommended as the best method of combating this action. Also this normal corrosive effect is increased if the brine becomes acid or highly alkaline, as a properly treated brine should have a slightly alkaline reaction. The following procedure for testing and neutralizing brine is suggested:

1. *Testing.*—The alkalinity of the brine should be tested at least weekly. A slightly alkaline brine will give a pink color with phenolphthalein indicator solution. An acid brine will give a white color with phenolphthalein and a highly alkaline brine will give a deep red color.

   If the hydrogen ion test is used the brine should test between 7.5 and 8.0 (pH).

2. *Neutralizing Acidity.*—If the brine tests acid, sufficient caustic soda dissolved in warm water should be added to give the brine a slightly alkaline reaction after being thoroughly circulated and mixed. This acidity may be the result of absorption of carbon dioxide from the air due to excessive agitation or aeration.

3. *Eliminating Ammonia.*—If the brine tests highly alkaline it probably contains considerable dissolved ammonia. The following practical test for ammonia is suggested:

   Place some brine in beaker, add a small amount of caustic soda and heat. The presence of ammonia will be confirmed by the odor.

As dissolved ammonia is highly corrosive, it should be removed by aerating and heating or else the brine should be discarded. If the brine is highly alkaline from other causes it can be corrected by the addition of sodium dichromate until the proper alkalinity is reached.

4. *Using a Corrosion Retarder.*—As mentioned in the first paragraph, a brine having the correct alkalinity is still somewhat corrosive and this normal corrosive action may be retarded by adding sodium dichromate as follows:

   125 lbs. per 1,000 cubic feet of calcium chloride brine.

   200 lbs. per 1,000 cubic feet of sodium chloride brine.

   As the sodium dichromate gives the brine an acid reaction, add a neutralizer as follows:

   35 lbs. of 76% commercial flake caustic soda per 100 lbs. of sodium dichromate used.

   The *sodium dichromate and caustic soda should be dissolved in warm water* and added to the brine at the point of greatest agitation.

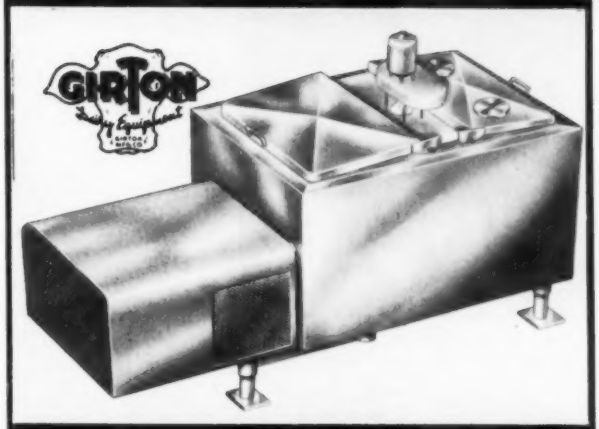
5. *Retesting.*—About 2 days after treating the brine as above, it should be retested as in (1) and if necessary correct for acidity or excess alkalinity.

   If the yellow color of the added dichromate interferes with the above test, it can be removed by the addition of a slight excess of 10% $BaCl_2$ and allowing the precipitant to settle, then testing the resulting clear solution of brine."

In general, where brines must be used in connection with processing and canning operations, care must be exercised to keep stainless steel surfaces scrupulously clean, particularly where surfaces are alternately wet and dry. Manufacturers and users of stainless steel equipment which will be exposed to brine should consult with the stainless steel producer regarding the most suitable type of stainless steel for proposed exposure.

"If that bird's so full of hot tips about new prospects, why doesn't he have his own route?"

Never Before So Much FARM TANK for So Little!



America's Finest LOW PRICE FARM COOLING TANK

Mr. Dairyman, if you've been looking for a farm cooling tank that will give you the MOST for your money . . . that will save you many dollars . . . that will MAKE MONEY for you, here, at last, is the tank you've been looking for.

Girton presents "THE SCOTSMAN," a low priced farm cooling tank that sets new standards of performance at low cost. This tank is a proud addition to the famous Girton line of farm cooling tanks.

Send for Bulletin and
See It in Booth 408 at the Dairy Show

GIRTON MANUFACTURING COMPANY
• MILLVILLE, PA.

S. H. CROUNSE TO BE HONORED DURING CONVENTION

Silas H. Crounse, Manager of the B-K Department of the Pennsylvania Salt Manufacturing Company, will be honored by company and industry associates during the Dairy Industries Supply Association Convention in Atlantic City next month on the occasion of his retirement, October 31. Mr. Crounse has been a leader in promoting and improving dairy sanitation methods over the last 40 years.

S. H. Crounse, Manager of Pennsylvania Salt Manufacturing Company's B-K Products Department, to be honored for contributions to food and dairy industries.

Through his association with the originators of B-K Liquid, Mr. Crounse pioneered in chlorine sanitation on the farm and in dairy plants, and made many contributions to the industry during a long and successful career devoted to this field.

Born in Helena, Mont., he was educated at schools in Oak Park, Ill., and graduated from the Agricultural College of Cornell University in 1912. He engaged in farming for three years before joining General Laboratories of Madison, Wis., in 1915. General Laboratories, founded three years earlier by the late A. O. Fox, were manufacturing B-K Liquid for the dairy industry.

The Pennsylvania Salt Manufacturing Company acquired General Laboratories in 1929 and Mr. Crounse was transferred to the company's executive staff at Philadelphia in 1933 when he was appointed Sales Manager of the B-K Department.

Early promotion of effective methods of producing high quality milk was a matter of educating farmers, dairy plant operators, jobbers and suppliers. Much of this work was done personally by Mr. Crounse.

FRANK NEU TO HEAD ADA PUBLICITY

Frank R. Neu has been named publicity director of the American Dairy Association, it was announced in late August by Lester J. Will, general manager of the organization. Neu has been public relations director of the association's Wisconsin state office.

Neu succeeds Donald F. Coleman who has been named assistant to the general manager.

A native of Iowa, Neu is a graduate of the University of Chicago. Later, Neu worked on several weekly newspapers in Wisconsin and published a magazine for rural newspaper writers.

For five years, Neu owned and published the Glenwood City., Wis., *Tribune*, before moving to the dairy farmers organization in Wisconsin which has offices in Madison.

Neu is married and has three children.

Coleman has been publicity director of the association since January, 1953. Formerly he was on the public relations staff of radio station WGN in Chicago and a reporter for the Chicago City News Bureau.

BUHL Quality SINCE 1888

WELCOME

To The D.I.S.A. Show, Friends

● This fine old line of BUHL DAIRY METAL WARE now offers bigger, better facilities and enlarged resources with which to better serve the Dairy Industry. The same group of BUHL men are waiting to welcome you—to make new friends and renew old friendships.

JOE S. HALL — LARRY F. HOWBERT
PAUL M. STEWART — WALTER G. EIBLER
E. F. RICKELMAN

Headquarters: TRAYMORE HOTEL — BOOTH 309 D.I.S.A. SHOW

PENN-MICHIGAN MFG. CORP. DETROIT 10, MICHIGAN

CHARLES H. BRINKMANN

JOHN J. DOHERTY

JAMES W. ROBERTSON

THOMAS H. CARR

C. E. FUHRER

Charles H. Brinkmann

Charles H. Brinkmann has been named vice-president in charge of sales of the Rowe Manufacturing Company, Inc., it was announced by Robert Z. Greene, president of the company. Rowe, a manufacturer and operator of automatic merchandising equipment, is currently expanding its nation-wide sales organization with additional offices and personnel.

John J. Doherty — James W. Robertson

John J. Doherty, assistant general manager of milk plants for H. P. Hood and Sons, and James W. Robertson, assistant general manager of the company's ice cream production, have been appointed to the company's board of executives.

Doherty joined the Hood company in 1930. Prior to becoming assistant general manager of milk plants in 1946, he served as superintendent of the company's milk plants in Worcester and Fall River.

Robertson became a member of the Hood organization in 1927. Prior to becoming assistant general manager of ice cream production, he served as superintendent of the company's ice cream plant in Springfield.

Thomas H. Carr

Thomas H. Carr recently joined Norris Dispensers, Incorporated, 2720 Lyndale Avenue South, Minneapolis, Minnesota as their west coast representative, it was announced by Lannie F. Norris, president of Norris Dispensers, Incorporated.

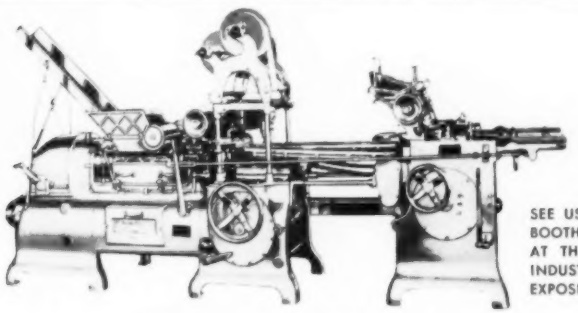
Carr, who was formerly sales manager for Beatrice Foods Company in his native Nebraska will represent Norris in Oregon, Washington, British Columbia and Alberta, Canada and Alaska.

C. E. Fuhrer

C. E. Fuhrer, a dairy executive and rural youth leader, recently announced his retirement from Fairmont Foods Company.

Mr. Fuhrer, vice-president in charge of dairy procurement for Fairmont

the standard for packaging speed



SEE US AT BOOTH D8 AT THE DAIRY INDUSTRIES EXPOSITION

Speed is an essential factor in today's packaging. Lynch engineers strive constantly to serve the changing needs of the packaging industry. "More units per minute" is one of their aims in designing Lynch Packaging Machines.

The Lynch Model T and K

packages butter, oleomargarine better because:

- It's completely automatic
- Molds—wraps—cartons . . . automatically
- Accurately controls weight
- Achieves greater speed in production
- Provides neater, more attractive packages
- Saves money with low maintenance cost

Write to Dept. AM for full details

ANDERSON, INDIANA

LYNCH CORPORATION

PACKAGING MACHINES

Branches: New York • Toledo • Chicago • San Francisco • Los Angeles Atlanta • Dallas • Toronto—Export Dept.: 13 East 40th St., New York 16, N. Y. Cables: ARLAB

since 1933, and a director of the company since 1929, made the announcement at a Fiftieth Anniversary party held in his honor at the Fontenelle Hotel. About 60 Fairmont executives and employees attended the banquet to salute Mr. Fuhrer and his 50 years' service to Fairmont and the area.

He began his long career as a ladle department helper in one of Fairmont's first butter plants in Crete, Nebraska.

Mr. Fuhrer opened Fairmont's Grand Island plant in 1909 and remained there as branch manager until 1916, when he was transferred to Columbus, Ohio, as branch manager. In 1925, he returned to the Omaha general office as dairy procurement manager for the entire Fairmont system.

Mr. Fuhrer now is the chairman of the Omaha Chamber's Agriculture Committee. He has been chairman of the Omaha Kiwanis Club's Agriculture Committee for many years. He is a member of the board of the American Butter Institute and has been chairman of its quality committee for several years.

Robert W. Clarke

Robert W. Clarke has been named manager of the Pennsylvania Salt Manufacturing Company's new plant at Delaware, Ohio. Announcement of his appointment was made by Albert H. Clem, president of the Pennsalt Chemical Specialties Division, under which the new plant will operate.

Mr. Clarke, a native of Portland, Oregon has had a wide variety of experience in Pennsalt's engineering and manufacturing departments at several of the company's plants. Previous to his new appointment, he was supervisor of production controls for the Industrial Chemicals Division in Philadelphia.

Mr. Clarke will assist in supervising construction of the new Delaware, Ohio plant and installation of its blending equipment, both of which are scheduled for completion by the end of this year.

O. N. Koenig

O. N. Koenig has been district chairman of The Borden Company's Chicago-Central District, since July 15. He has supervision over all fluid milk and ice cream operations of the company in Illinois, Wisconsin, Iowa and Northern Indiana.

Mr. Koenig has been with Borden's since 1928. He has recently been assistant district chairman, and previous to that was president of the Chicago Milk Division of The Borden Company.

Mr. Koenig succeeds O. O. Smaha who has retired after thirty years of service with the company.

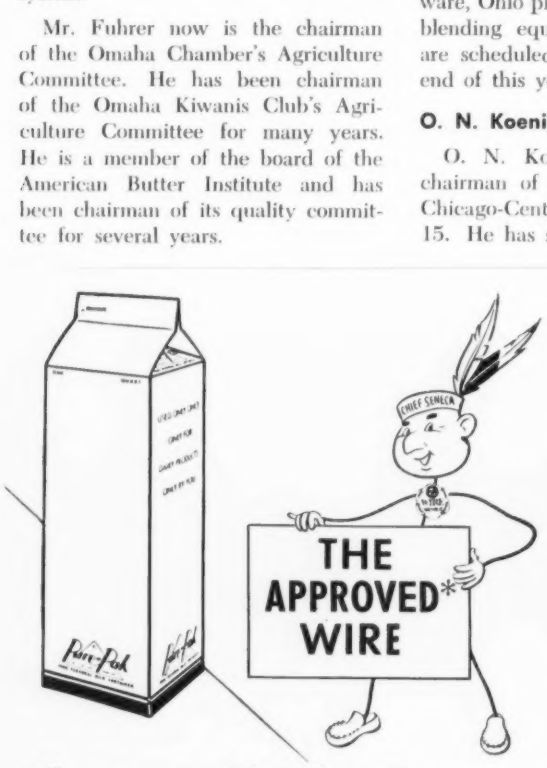
Irwin L. Adams

Irwin L. Adams, United Steel and Wire Co., Battle Creek, Michigan, has been appointed as the company's direct representative in North and South Dakota.

Mr. Adams has been associated with the industry for a number of years. His headquarters is 2420 S. Summit, Sioux Falls, South Dakota.

Arthur P. Schulze

Diamond Alkali Company, Cleveland, Ohio, recently announced the appointment of Arthur P. Schulze as manager of public relations and advertising.



If you are a user of the modern milk container . . . Pure-Pak, you can be assured of trouble-free stapling operations by specifying Seneca, for "always-the-same" high quality. Write for complete information today.

*Seneca is currently supplying many leading dairies with stapling wire for ALL their requirements.

SENECA
WIRE & MFG. COMPANY
FOSTORIA, OHIO
Representatives in practically All Principal Cities

IT PAYS TO USE R&M QUALITY FILTERS

WRITE: REEVE & MITCHELL
211-221 NORTH 13TH STREET - : - PHILADELPHIA 7, PA.
Phones: RIttenhouse 6-6327; 6-6328

Schulze joins the Diamond organization from Hill and Knowlton where, for the past seven years, he has been engaged in publicity and public relations for this leading producer of basic chemicals and several other industrial concerns in this area.

Under the supervision of a company executive, he will be responsible for directing and coordinating Diamond's public relations and industrial advertising programs, working in cooperation with the company's public relations counsel, Hill and Knowlton, and its advertising agency, Fuller and Smith and Ross.

A. Maurice Davis

A. Maurice Davis, former Pacific coast district manager of Liberty Glass Company, has been promoted to the position of acting sales manager. His headquarters will be at the general offices, Sapulpa, Oklahoma, according to George F. Collins, Jr., president.

Beginning with Liberty in the main office in 1937, Davis served as a cost accountant, and then in the factory as assistant to the plant manager until 1948. Since then, he has been district manager of sales in the Pacific Coast territory.

James R. Starnes

James R. Starnes, sales manager of Liberty Glass Co. for many years, has at his own request been made district manager of the Chicago territory, including Illinois, Eastern Wisconsin and Indiana. Worell Dees, assistant sales manager, had previously been promoted to sales director.

L. W. Radford

L. W. Radford of Hollywood, California, will succeed Davis as Pacific Coast district manager of Liberty Glass. Radford will cover California, Washington, Oregon and Nevada territory. He is well known in Pacific Coast busines circles.

Harold T. Folsom

Harold T. Folsom is another addition to the Liberty sales force. He is widely known in the dairy and beverage industries. He will succeed George H. Weaver and will cover Minnesota, Iowa, Western Wisconsin and North and South Dakota.

Merle F. Stutzman — A. V. Petersen — R. N. Craven

Russel L. Sears, vice-president and general sales manager of Lynch Corporation announced the appointment of three sales officials of that company this week. A. V. Petersen, former sales manager of the Compressor Sales was advanced to sales manager of Packaging Machine Sales upon the retirement of M. V. Girkins. Merle F. Stutzman, was appointed sales manager of the Compressor Sales, and R. N. Craven was made manager of the Mid-Western District Offices of Chicago, Illinois.

Mr. Petersen was district manager of the Southern District Offices of the Corporation for four years before assuming duties as sales manager of the Par Compressor Sales.

Prior to accepting a position with Lynch Corporation, Merle Stutzman was service manager and general manager of Refrigeration Supply Distributors of Los Angeles from 1930 to 1952 when he became store manager and purchasing agent of Thermal Products, Incorporated, of the same city.

Mr. Craven has been assistant to the district manager of the Eastern District Offices of New York City since 1952 prior to his appointment as district manager of the Mid-Western District Offices.

"The Ilreco MT Filler-Sealer unit puts the small plant operator on a par with his large competitor . . . with a more distinctive bottle, easier to handle and easier to refrigerate because of its tapered sides."

Maurice P. Bouxsein

Leafy Lane Dairy, Princeton, Illinois

Ilreco Pure-Pak installation at Leafy Lane Dairy, Princeton, Ill.

The ILRECO Pure-Pak filler-sealer and NESTED container are ideal for low cost paper operation. Mail the coupon for all of the facts. Compare before you invest.

ILRECO Pure-Pak FILLER-SEALER MACHINE

ILLINOIS CREAMERY SUPPLY CO. A
715 S. DAMEN AVE., CHICAGO 12, ILLINOIS

Gentlemen: Please send information about the ILRECO Pure-Pak way to package milk in paper.

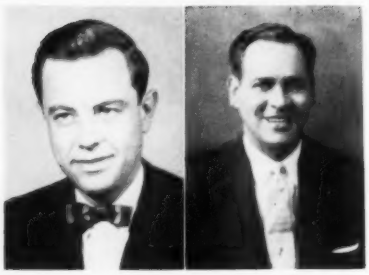
NAME_____

DAIRY_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

ILLINOIS CREAMERY SUPPLY CO.
715 SOUTH DAMEN AVENUE, CHICAGO 12, ILL.



LYLE W. SMITH JOE P. CYR

Lyle W. Smith

Appointment of Lyle W. Smith as an assistant national advertising manager of the Borden Company was announced by Stuart Peabody, assistant vice-president of the company. Mr. Smith formerly was advertising manager for Borden's Chicago-Central fluid milk and ice cream district, covering several Midwest states.

Joe P. Cyr

Joe P. Cyr, assistant manager of the Creamery Package Mfg. Company's Seattle Branch office, was recently appointed CP Seattle Branch Manager according to an announcement by Mr. J. L. Brazee, vice-president in charge of sales.

Mr. Cyr joined the Creamery Package Mfg. Company in 1936, and he has worked in the capacity of salesman to CP'S Portland Branch and later CP's Seattle Branch, covering the Seattle City territory. In 1953 he was promoted to assistant manager of the Seattle Sales Branch and has held this title until his recent promotion.

Joe, who comes from a family that has always been in the dairy business, at one time operated a small ice cream business by himself.

Phillip C. Althen

Phillip C. Althen has been appointed head of the newly created Packaging section of the Sales Development division of Aluminum Company of America. Assisting Mr. Althen will be Richard C. Manchester, formerly of the New York district sales office, and Robert H. Tooker, formerly of the company's Atlanta office.

The new section will concentrate on rigid, semi-rigid and flexible packages. They will formulate an integrated program for the use of aluminum in the packaging field. Plans call for the section to initiate independent development projects to further the use of aluminum in the field of packaging.

Mr. Althen joined Alcoa in 1947 as a Sales Development engineer specializing in packages, containers, foil insulation, hardware, signs, markers, lighting fixtures, jewelry, and timing devices.

●

TO REPRESENT TRIANGLE IN NEW ENGLAND

The Robert Bacon Company, 272 Centre St., Newton 58, Mass., has been appointed New England representative for the Triangle Package Machinery Company. They will handle both the Triangle and Bagby line.

●

NEW ADA RESEARCH DIRECTOR

Daniel H. Jacobsen, Ph.D., has joined the staff of the American Dairy Association as research director, it was announced on September 22 by Lester J. Will, general manager of the association.

Jacobsen succeeds Russell E. Frost who has moved into the organization's membership department.

For the past 10 years Jacobsen has been technical advisor in the supply and merchandising department of Cherry-Burrell, Inc., Chicago. Prior to that he was quality control supervisor for the Prairie Farms Creameries, Chicago.

The new research director received his B.S. degree from South Dakota State College, his M.S. degree from Washington State and his doctor's degree from Iowa State College. He taught for 10 years in the dairy manufacturing department of South Dakota State College and also engaged in research work during that period.

Jacobsen will supervise the nutrition, market and economic research program being conducted by the American Dairy Association. The program currently includes 26 nutrition and dairy problem projects at 15 universities and research centers across the nation. Market research is being conducted for the association by the Alfred Politz Research, Inc., and the organization is cooperating with the United States Department of Agriculture in several economic facts projects.

●

FLORIDA DAIRYMEN NAMED TO MILK USE COMMITTEE

State School Superintendent Thomas D. Bailey on Sept. 23 named a 20 man committee to help increase consumption of milk in Florida schools.

The school chief stated that school officials, representatives of parent-teacher groups and dairymen have been invited to meet with the committee at Tallahassee, Fla., to draft plans for getting more school children to drink more milk.

Bailey added that the Federal government is making funds available to

STS KING COMPANY

YOU CAN SEE IT . . .

THE "KING" STS BULK MILK TANK SEDIMENT TESTER with the NEW 44/100 FILTER SCREEN for BULK MILK TANK SEDIMENT TESTING

also

OUR COMPLETE LINE OF SEDIMENT TESTING EQUIPMENT

At Booth G-5

1954 DAIRY INDUSTRIES EXPOSITION

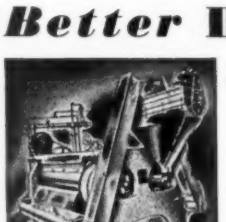
Atlantic City, New Jersey October 25-30

SEDIMENT TESTING SUPPLY CO.

20 East Jackson Blvd. Chicago 4, Ill.

***Better* DRY MILK**

AT LOWER COST



●●●

DRY MILK MACHINES
Built in Five Sizes

The Patented, glass-smooth, "20-year cylinders" give years and years of maximum production of a superior dry milk at the lowest possible cost.

Many other exclusive features insure long life with low steam and power costs. Complete details upon request.

OVERTON MACHINE COMPANY

Dowagiac Michigan

the states to boost use of milk in the schools. Florida expects to draw more than one million dollars in Federal money for distribution to counties which increase milk sales in their schools.

Counties which increase sales of school milk will receive up to four cents for each half pint of milk sold this year in excess of last year's milk sales.

Members of the State committee are:

C. Raymond Lee, Clearwater; J. K. Nichols, Jr., Jacksonville; Fred B. Ragland, Jacksonville; E. T. Lay, Jacksonville; Nathan Mayo, Commissioner of Agriculture; Harry Wood, State Department of Education; Mrs. Elizabeth M. Espy, Perrine; U. F. Gibbs, Madison; G. T. Wiggins, Pensacola; Miss Lucille Moore, Panama City; Mrs. Blanche Daughtry, Bradenton; Mrs. C. D. Johnson, Quincy; Mrs. Sylvia Carothers, Tallahassee; Jere Stambaugh, Auburndale; Floyd Christian, Clearwater; A. S. Godby, Tallahassee; Robert E. Willis, Bradenton; Herman Boyd, Miami; Robert A. Wilson, Miami, and John Seay, Ocala.

SOUTHERN DAIRIES NAMES FOUR TO NEW POSITIONS

Recent personnel changes announced by W. S. Obenshain, president, Southern Dairies, Inc., list new posts for Southern Dairies executives.

Newly appointed Zone Sales Manager Howard Suttle has been sales manager at the Company's Asheville plant since 1951. As zone sales manager his territory includes the operation at Asheville, and branches at Bryson City and Brevard, North Carolina and Greenville and Spartanburg, South Carolina.

Manager for Southern Dairies operations in Columbia, South Carolina is Thomas H. Burton, formerly sales manager there. Mr. Burton joined Southern Dairies, Jacksonville, Florida, in 1947 as a sales representative, which position he held prior to being appointed to the Columbia post in 1952.

Manager for Southern Dairies' new branch plant at Martinsville, Virginia is Robert C. Hutcherson, who has been a member of the Southern Dairies, Winston-Salem Sales Department since 1940.

●

GERBER FAT TEST

(Continued from Page 119)

rapid mixing (flow rate equivalent to that in much larger bore tubing). Bottom meniscus converted into a straight line, and no trouble to read. Top meniscus so clearly defined, reading to 0.05% is practical and accurate.

(6) Sealed container—no accidental spillage of contents.

(7) Disc type centrifuge—no cooling of bottles.

Looking for *Frills* . . . or PRODUCTION?

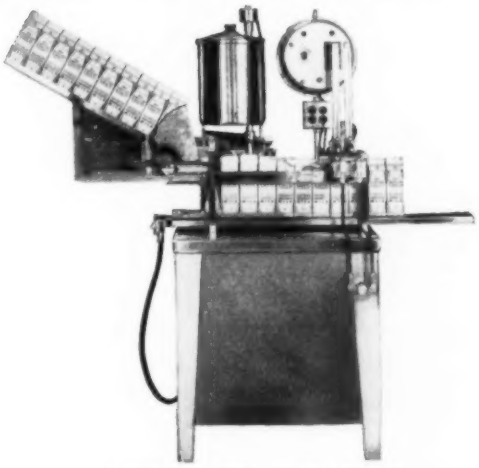
Costlier paper filling units may look fancier, but they can't match the production and performance of M-D *Electromatic* Fillers! 1200 smaller dairy plant operators have found these engineered, low cost M-D Fillers to be the most profitable answers to their paper filling operations. You will too.

Look at these features:

- Adds nothing to your present labor cost.
- Fills American Can, Pure-Pak or Sealking cartons with equal ease.
- Portable—takes only very small floor space.
- Speeds up to 20 quarts or 10 two-quarts per minute.
- Coordinates perfectly with your glass milk line.
- Electronic Timer assures uniform product volume.
- Handles all size cartons.
- Designed for e-a-s-y cleaning-quick changeover.
- Exceeds the most rigid sanitary requirements.
- Available at a price any small dairyman can afford.

Here are 15 great models to choose from — fully automatics, semi-automatics and manually operated.

Get the full story — write today for your copy of "The M-D Program for Small Dairies."



M-D *Electromatic* Filler, Model APM with Optional Magazine Feed

See Us at the Dairy Show — All Models Will Be on Display

THE MOJONNIER-DAWSON CO.

8151 FULLERTON AVE. Phone: Gladstone 5-1013 FRANKLIN PARK, ILL.

Engineered, plant-proved equipment for the smaller dairy

(8) Single centrifuging – only one – not three –starts and stops.

(9) No shaking after first centrifuging – essential to get perfect tests by Babcock method.

(10) Not hot water addition – no toasted fingers, no spoiled samples.

(11) Key adjustment of fat column – no hand puncturing by calipers; rapid reading. (Not sufficient cooling to change meniscus slope, with attendant increase in the test of a slightly cooled bottle, as in Babcock.)

(12) Easy cleaning – no greasy fat columns; lead sulfate accumulates at the stoppered bottom of the flask, and is largely removed with the stopper. When bottle is reversed before emptying, acid wets the small bulb and tube surfaces; the fat, and the balance of the lead sulfate empty out immediately, when the contents are dumped out.

(13) Accuracy – calibration to fine tolerance, and intrinsic constancy of method, permit replicates to check within 0.05%.

Until Babcock operators themselves employ the Gerber test, they cannot believe that perfect fat columns are always obtained; that there is consistent freedom from (a) light-clouded, and dark-smokey ones; and (b) particles of extraneous matter at the top or bottom or throughout the columns. Those who have employed various Babcock modifications before using the Gerber, will be most delighted with their replicates now actually resulting in identical values, and no further need to follow hunches, as to when a "homogenized milk" test would be more appropriate than the regular.

> Dr. David Levowitz, the author of this article, is Director of the New Jersey Dairy Laboratories in New Brunswick, New Jersey. An extremely articulate individual, Dr. Levowitz is not one to sit on a fence. He has ideas and he has convictions. He expresses them with vigor and clarity as you will see when you read this discussion of the Gerber fat test.

The practice of blending what homogenized milk may be left in surge tanks with creamline, and then filling paper containers with the blend has, through the Babcock test, resulted in endless embarrassment of the industry by official agencies. Such containers are customarily labeled to imply their being filled with "Regular" (creamline) milk. Laboratory technicians are not endowed with clairvoyance; the Babcock "regular" test is routine, and is therefore used on such blends, generally resulting in tests showing non-conformance with legal requirements, and these are followed by adverse publicity and fines. Some of the damage can be undone, by explaining the composition of the blend, and arranging for the appropriate use of the Babcock "modified" technique, in the future. But the effects of undesirable publicity are never wholly negated.

In spite of sixty-four years of worldwide data which has established the Gerber method as the best of the non-solvent tests, it is so poorly recognized in this country, that only three states permit the test to be used at present as a basis for payment. Because it is a simple, single, fool-proof, rapid, and accurate system the industry should become better acquainted with it.

General Mills Promotion Helps Sell Your Vitamin-Mineral Skim Milk

Nutrition experts say milk is as important to adults as it is to youngsters. Mom needs it. Dad needs it. So why aren't they drinking much milk? You know. Afraid of fat!

That's why Vitamin-Mineral Skim milk is making new sales for many dairies. This low-fat milk is "good for" both adults and children—adults concerned with their waistline and children who have difficulty digesting fats. One quart supplies the minimum daily requirements of Vitamins A, B_1, B_2, Niacin and D, as well as minerals iodine, phosphorus, iron and calcium.

There's no doubt about it that with the attention given today to vitamins and minerals in people's diets there's a place for Vitamin-Mineral Skim milk in your sales program. It is a specialty from which you can expect a wider profit margin. And we've got the promotion to help you persuade them.

YOUR CHOICE:

VITAMIN A AND D SKIM
VITAMIN A AND D 2% B.F.

VITAMIN-MINERAL SKIM
VITAMIN-MINERAL 2% B.F.

COMPLETE CAMPAIGNS include posters, newspaper ads, bottle collar, publicity stories, consumer folders.

These promotions can boost *your* milk sales. Ask your General Mills salesman for full details, or write!

General Mills
Special Commodities Division
SUPPLIER OF VITAMIN CONCENTRATES
MINNEAPOLIS 1, MINN.

GOOD CREAM FROM FROZEN FAT

(Continued from Page 121)

damage done to the cream by slow melting was most obvious.

In making ice cream from frozen fat manufacturers reported that when melting the fat in a pasteurizer, they occasionally had complaints of an oxidized flavor. This was especially true when the ice cream was used in a soda since the CO_2 tends to bring out the oxidized flavor. These same manufacturers advised that after changing their operation to rapid liquefaction they had no complaints of oxidized flavors.

In the manufacture of sour cream, due to the elimination of "oiling off" of the fat "rough batches," batches with butter specks in the sour cream, were eliminated and double homogenization found unnecessary. Since the cream does not have time to incubate during melting the acidity does not increase, and shelf life of the sour cream is improved. It is possible to make as good sour cream from frozen cream as from fresh cream, *but, only if the cream is not damaged in the melting process.*

One of the most difficult products to make from butter is a very high quality sterile milk oil, which will not go rancid in the absence of refrigeration. Operators with years of experience in the field report that only by liquefying the butter rapidly, so that oxidation of the fat cannot take place prior to reseparation, can an oil of high quality be made on a commercial scale.

Quality control has been discussed first because it is believed to be of the greatest importance and have the greatest effect on sales over the long pull. But there are other considerations

By conveying all of the frozen product to one point, removing the containers without thawing, immediately liquefying and then pumping as when using fluid cream, good housekeeping is greatly enhanced.

By handling the product only once, from the frozen storage to the point of melting labor savings are substantial.

Since any shape, size or type of container may be used for the frozen product, the most economical packed may be used.

Frozen cream and butter has been rapidly liquefied in many plants during the last four years. Operators report that the savings have paid for the cost of changing from the old method many times over.

Careful liquifications of frozen cream is very important. After all there isn't much sense in making the finest cream from the finest milk, in the most sanitary manner, storing it at 20° below zero F., transporting it, and then damaging it at the point of use.

F. L. Bryant, the author of this article, is president of the Bryant Machinery Corporation. He has had extensive experience with the problems associated with the use of frozen cream. He has drawn on this experience in presenting this discussion. We think you will find it valuable reading. As Mr. Bryant says, there isn't much sense in taking high quality cream, preserving it, transporting it, and then spoiling it at the point of use.

..another Murphy Body!

Equipped with hold-over plates and self-contained freon compressor refrigeration.

For safety's sake MURPHY Bodies are of all steel construction and fully insulated for greater economy. When you want . . .

ECONOMY - QUALITY - SAFETY
Make it MURPHY!

Visit our Booth No. 135 at the DISA SHOW and see for yourself what MURPHY BODIES have to offer.

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MURPHY BODY WORKS, Inc.

310 HERRING AVE.
WILSON, N. C.

CENTRICO HEAD KILLED IN AIR CRASH

Heinz W. Habig, 33, killed in the crash of a K.L.M. Super-Constellation in the Shannon River on Sunday, September 5, was returning to his business here from a three-month trip to Europe, during which he visited new industrial separator installations. Mr. Habig and his wife, also killed in the crash, lived at 639 Churchill Road in West Englewood, N. J. They had no children.

Mr. Habig was president of Centrico Incorporated, sole distributors and representatives in the United States for Westfalia Separator A. G., manufacturers of centrifugal separators used in many industries, such as dairy and beverage, where fluid processing is carried on. A graduate of the University of Vienna's School of Business, he is survived by his father, Werner Habig, president of Westfalia Separator A. G., his mother and sister.

Mr. Habig was particularly active in the Dairy Industry Supply Association.

●

ELECTED TO FAIRMONT BOARD

A. W. Gordon, Midwest business and civic leader for many years, has been elected to the Board of Directors of Fairmont Foods Company.

Mr. Gordon replaces C. E. Fuhrer, Fairmont vice-president and board member since 1929, who retired recently.

Mr. Gordon is chairman of the board of the Omaha, Nebr., Loan and Building Association. He was president of that firm from 1929 until 1951. He was recently elected to the board of the Omaha National Bank, and has served on the boards of the former Nebraska Power Company and Clarkson Hospital.

Mr. Gordon is the former president of the board of Childen's Memorial Hospital and the former president of the Omaha Association of Taxpayers. He is one of the originators and incorporators of the Omaha Community Chest, and for ten years was chairman of the Board of Regents of the University of Omaha. He served four years during World War II.

●

REDUCING THE FAT IN SWEET CREAM FOR CHURNING

(Continued from Page 70)

Wilster (2) has presented empirical evidence of the adverse effects of diluting cream with water. He demonstrated in one Oregon creamery that it was possible to reduce the per cent of total fat lost in buttermilk from 1.64 (average of 25 churnings) to 1.12 (average of 30 churnings) partly as the result of eliminating completely the dilution of cream with water (4.1 per cent by weight) from rinsings of pipes, vats, etc. Other changes such as better adjustment of churning temperature and cream volume in the churn were also responsible for this improvement, but it was obvious that a relatively minor dilution with water would cause more of the fat to be lost in the buttermilk.

On basis of this evidence I should predict that your churning losses from cream which had been diluted with water from 50 to 35 per cent fat would be considerably in excess of the normal (1.10-1.25 per cent of the total fat). Unfortunately I am unable to verify it by specific examples, but I must concur in your opinion that it would be better to dilute with reconstituted non-fat dry milk solids.

You should, of course, be able to recover the non-fat solids when the buttermilk is processed (dried or condensed) although there probably would be a slight reduction in the price of these when they are sold as dried buttermilk. I question that this loss would be as great as that associated with the lower fat recovery.

(1) Bird, E. W. and Derby, H. A. Chemistry of butter and butter making. III. The relationships between (1) the percentage fat and (2) the protein percentages of cream and the churning loss. Iowa Agr. Expt. Sta. Res. Bull. 214 (1937).

(2) Wilster, G. H., Robichaux, R. P., Stout, R. E. and Stein, R. W. Reducing the loss of fat during churning. Oregon Agri. Expt. Sta. Bull. 397 (1941).

●

BUILDING A PLANT

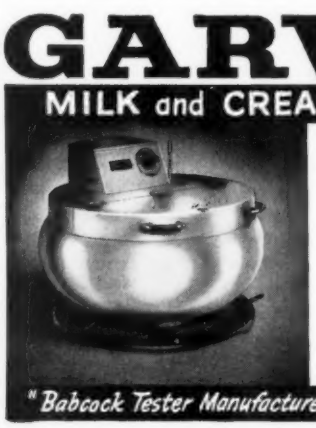
(Continued from Page 84)

tion is completed we will present figures to show the more favorable rate. The owner will know all the effects that the site conditions will have on his cost, operations and maintenance before proceeding with the work.

Type of Structure

The location, local building codes, fire insurance rates, etc., will settle the question of the type of structure to be built. The past experience of the production man and the Architect-Engineer with maintenance costs of buildings will determine the materials to be selected for the interior finishes, especially in the process areas. These should be chosen with the thought of maintenance always in mind. A small percentage of the initial cost of the

GARVER
MILK and CREAM TESTERS



Advanced design offers more value for the money. Speed control, quick acceleration, outside reading thermometer, visual speed indicator, and many other features. Also standard models from 8 to 36 bottle capacity. Write for catalog including simplified Babcock testing methods.

THE GARVER MANUFACTURING CO.
Union City, Indiana

"Babcock Tester Manufacturers for Three Decades."

entire plant may be saved on the interior finishes but when maintenance costs over a period of 10-20 years is added the savings will prove to be uneconomical. Most of the finishes were described by the writer in a series of papers heretofore published in this magazine. Reference to these will serve as a guide in the final decisions. Materials can either be shown on the completed preliminary drawings or an outline specification of all the materials and methods of installing them can be prepared.

Now check back on every item of the program to see that all conditions have been provided for and that all decisions are sound. Then, when each team member submits his estimates of all labor, services, materials, equipment, piping, trucks and whatever else is required, total it up and present your program to the management for approval.

●

CRITICISM OF PASTEURIZATION

(Continued from Page 113)

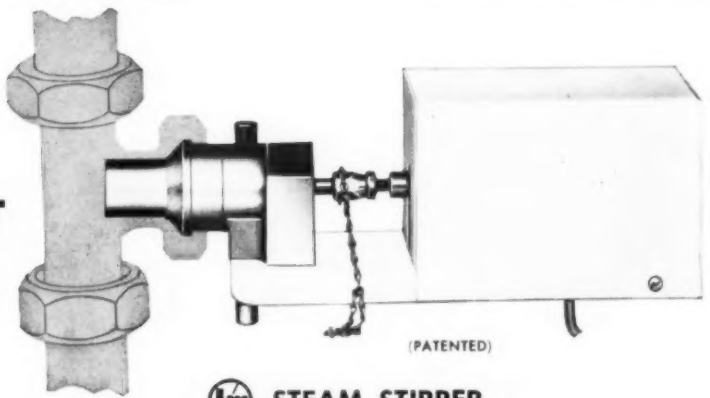
not destroyed. It is probable that certain toxic products formed by extensive growth of bacteria in milk resist pasteurization exposures, but if the same milk were consumed in a raw state the toxic products would be equally or more active. Since these products are not the result of pasteurization but developed before it is used, the process cannot be held accountable for them. Such milk is not satisfactory for consumption either raw or pasteurized.

4. Pasteurization may be used to mask dirty milk. In some instances pasteurization undoubtedly has been employed to give milk which has undergone extensive bacterial growth a keeping quality that made it marketable. Improper use of pasteurization cannot be blamed on the process and can be stopped through supervision of the supply intended for heating.
5. Milk enzymes are destroyed. The normal milk enzymes are partially or completely destroyed by the usual pasteurization exposures. There is, however, no evidence to show that this is detrimental nutritionally and the destruction of lipase is a distinct advantage because the milk would become rancid if left in a raw state.
6. Influences the composition of milk. Investigations indicate that pasteurization at the usual exposures has little effect on the composition of milk. The availability of the calcium and phosphorus is not changed, the proteins are not damaged.
7. Influences vitamins. One research worker has reported that pasteurization does not lower the vitamin A or carotene content of milk, and there is no indication of loss of vitamin D, but that there may be some destruction of the other fat-soluble vitamins E and K. Some reduction has been reported in the amount of ascorbic acid present in pasteurized milk. Contact with copper equipment and exposure to light accelerates this destruction. Since copper equipment in milk plants has largely been replaced with stainless steel, the light effect is undoubtedly of the greatest importance. Much of the vitamin C destruction usually occurs after milk has been delivered to the doorstep, and it makes little difference whether the product is raw or pasteurized. Some other minor vitamin reductions have

Be sure to see

LW DAIRY EQUIPMENT

Famous for Labor-Saving and Quality Control



(PATENTED)

LW FLOW LINE SAMPLERS *(Illustrated)*

LW WHOLE CAN CREAM FILTERS *Stationary - Portable*

LW VACUUM SAMPLERS

LW H. T. S. T. TIMERS

LW STEAM STIRRER *(For Can Stirring)*

LW SEDIMENT TESTERS *Milk or Cream - Manual, Mechanical, Bulk Tank, Laboratory*

LW DISCS - CARDS

You'll see more at C-9

LW DAIRY SUPPLY DIVISION
1266 SHELBY STREET, INDIANAPOLIS 3, IND.

been reported but in the main they are of small importance.

To summarize, the changes in milk brought about by pasteurization are minor in the extreme and are of no importance in diets as varied as those commonly found in the United States. The beneficial effects of the process in eliminating milk-borne epidemics far outweigh the slight changes produced.

●

14,000 FARM TANKS

(Continued from Page 102)

the only way that we know of determining the amount of milk and the basis for payment.

A few meager reports indicate that research is still going on for a satisfactory metering device but, up to this writing, there has been nothing to indicate that the search has been successful. It is highly possible that a device will be developed eventually. As of now, however, there is no hint of it.

The tanks themselves, although the subject of some inevitable minor improvements, remain substantially the same. The development of 3-A standards covering them has been a big help to manufacturers, health department officials, producers and dealers. It seems to us highly significant and a tribute to the pioneers in this method, that the first tanks installed six and more years ago are still operating in a satisfactory manner.

●

REFRIGERATED TRUCKS

(Continued from Page 58)

over 1,000 pounds more than the aluminum body and that this additional weight will be carried around every day during the life of the truck.

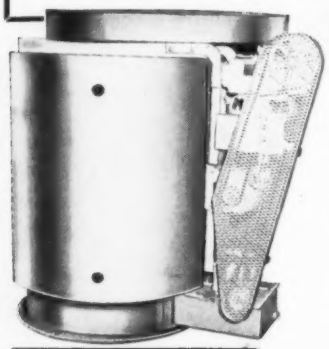
Retail truck bodies have always given us the biggest rust problem, perhaps because of the use of ice as a refrigerant. Because of this rust condition and the terrific toll it takes of truck bodies, we recently decided to try another approach in retail body construction. We are presently building three plastic retail truck bodies, and to my knowledge these will probably be the first plastic retail truck bodies constructed in this country.

There are several different means of building plastic bodies. I might mention that the first plastic body that we have built is completed and has been delivered to Houston, Texas, for use in our operations there. This body was not actually 100 per cent plastic, as the framework was constructed out of aluminum and plastic sheets were used as covering both inside and out. The entire cowl and windshield section was built out of plastic in a plastic mold designed especially for the particular truck on which it was used.

The other two plastic bodies which are presently under construction will be almost 100 per cent plastic, including the framework. These two bodies are being built by different companies employing different ideas. For instance, one of the companies will use plastic on the outside shell which will incorporate Carnation's colors of red and white. If this is successful, it certainly would save thousands of dollars in paint costs in any large fleet.

Since plastic has a certain "K" factor in itself and also acts as an insulation, and because of the fact that plastic bodies can be sealed and vapor proofed, it would seem that less insulation would be needed in the construction of insulated bodies. We are, however, using 4 inches of insulation in the plastic retail bodies because we have no proof at the present time whether one inch of insulation would be sufficient or whether it would take

EXTRA PROTECTION with KENT *Zero Chip* ICE UNITS



- Packs easily around cartons or bottles!
- Zero-Chip is sub-zero to start! Runs like sand!
- 5-Year Guarantee!

ICE CAN BE MADE IN YOUR PLANT. — CRUSHED AND READY FOR USE AS LOW AS **$1.00 PER TON**

MAY BE PURCHASED ON LEASE PLAN FOR AS LOW AS **$2.00 PER TON**

1½ ton	cap.		$1400
3- 5	"	"	3500
5- 7	"	"	4100
7- 9	"	"	5500
10-12	"	"	5950
16-20	"	"	6950
24	"	"	7950

These compact units are built for your special needs, with capacities from 1½ to 40 tons. Year after year, you are assured of sub-zero, easy-to-handle dry ice. No mess — no wet, sloppy ice! No moving drums — or top oil seals to leak oil into ice. No metal to metal contact, with all exposed parts plated. ALL PARTS GUARANTEED 5 YEARS! Figure the savings, yourself — in labor, maintenance and operational costs!

Write For Free Folder, Complete Prices!

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2244 SO. MICHIGAN AVE.
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THIS **NEW** RETAIL DELIVERY CABINET

HAS THE *Best refrigeration* AND THE *Best price* EVER!

SEE IT **BOOTH 10**

EST. 1888
CHICAGO WAGON WORKS, INC.
56TH STREET AND 11TH AVENUE
N.Y. 19, N.Y.

REFRIGERATED WHOLESALE AND RETAIL MILK TRUCKS

●

REFRIGERATED ICE CREAM TRUCKS

4 inches. Therefore, for the benefit of the doubt we are using 4 inches of insulation.

The cost of plastic bodies naturally is higher than the conventional type of body. This is partly because it is necessary to make plaster molds to form the plastic sections that are used in the body construction.

If plastic bodies are successful, and I have every reason to believe they will be, and if the cost can be brought down to something nearer the cost of conventional bodies, then the dairy industry no doubt would certainly be interested in using plastic construction. It has always been a problem in the dairy industry to get a body, whether it be refrigerated or non-refrigerated, that would last the life of a truck chassis.

I am not advocating the type or make of refrigeration to be used in refrigerated trucks. Neither am I advocating the type of body construction that should be used. But one thing seems pretty certain, and that is that the trend in the dairy industry is definitely toward more widespread use of refrigerated trucks.

LABOR RELATIONS 1952-54

(Continued from Page 90)

men substantial benefits from price increases, and they were prepared for some setbacks.

The 5 cents an hour increases in pay for steel workers, railroad workers, and other major industry adjustments this year have been a yardstick in most dairy employee wage adjustments. This rate of increase is not likely to be lessened in the near future, we find most operators indicate. Along with some rate adjustments will come more general and liberal terms for vacations for workers with years of continuous service, and in the health and welfare plan that employees and their families are coming to expect the employer to provide.

So it is, with this trend in labor costs still on the upgrade even though the postwar economy has settled down to months of nearly level BLS index figures, that we find dairy operators taking another look at labor-saving machinery and methods this fall. Underlying the entire exposition in Atlantic City is the pressing need for management and capital to offset through engineering ingenuity what the labor market has built up. With no drop in sight, payroll costs have reached levels never before experienced.

●

DAIRY INDUSTRY SUPPLY ASSN.

(Continued from Page 68)

safeguard and promote the interests of marketers to the dairy processing industries.

2. To encourage the application of scientific and technological methods in the continuous development of the dairy processing industry.
3. To collaborate with public and private agencies for the general welfare of the dairy industry and the public at large.

Through the magnificent Dairy Industries Exposition, through its 3-A standards work, through the Collegiate Students International Contest In Judging Dairy Products which it sponsors in cooperation with the American Dairy Science Association, through its market data service, through many other lesser known activities DISA gives life and meaning to the grand objectives.

HIGH SPEED PUMPING is MIGHTY EXPENSIVE in BUTTERFAT LOSSES

HIGH SPEED pumping is mighty expensive — *in butterfat losses!* Excessive speed churns and "batters up" the fat globules. And unless a Waukesha slow speed Positive Displacement pump is used any change in output location changes head pressure and back pressure, resulting in accelerated recirculation and more "buttering up" of pump parts. Then valuable butterfat is washed down the drain.

A Waukesha P.D. pump prevents these butterfat losses, saves money every day. For, with Waukesha's *slow speed positive displacement* principle of pumping, your milk comes *out* of the pump exactly as it goes *in*. You won't have any trouble, particularly with cold milk separators. There's no chance of churning, recirculation, aerating, no possibility of breaking up fat globules, or losing butterfat — regardless of heat pressures, when you standardize on Waukesha P.D. pumps. Your milk goes through your production line with all its rich butterfat content unimpaired.

That's why butterfat savings, plus longer trouble-free service, make Waukesha Slow Speed Positive Displacement Pumps your safest and most profitable investment in milk handling. Write for the whole story.

USE WAUKESHA SLOW SPEED POSITIVE DISPLACEMENT Sanitary Pumps for Steady Profits!

WAUKESHA FOUNDRY CO. 1306 LINCOLN AVE. WAUKESHA, WIS.

Waukesha 100% SANITARY PUMPS

Dependable Product of a Responsible Manufacturer

PACKAGING IS A JOB YOU HAVE TO DO

By LUTHER A. KOHR

DEPARTMENT STORES long have held that proper packaging of staples which naturally go into packages converts the *potential* buyer in to an *actual* buyer. One of the most notable examples, department stores assert, is the International Latex Corporation girdles. These girdles are the leaders in their field because of the long colorful tubes in which the girdles are packaged.

The post-war rivalry for sales leadership in the tooth paste industry is another example, and this battle for sales has brought new packages to almost every tooth paste.

Manufacturers of such items as stockings and underwear also have been able to do an efficient job by use of cellophane.

Remember the corner grocery store where there were a dozen different metal boxes each about 20 inches square and of about the same depth that contained cookies? Today, thanks to cellophane, supermarkets are able to handle a much larger variety of cookies, the customer can see exactly what he is getting, and the hands that may have sold the previous customer molasses out of a barrel and kerosene out of a tank are not touching the cookies.

Of course, we feel this business of proper packaging was carried a little too far when one of the exhibitors at the recent National Packaging Exposition of the American Management Association displayed a one-piece polythylene bag containing a 1954 Buick convertible.

Nevertheless, with the trend to surburban shopping centers, the importance of packaging never was more timely for in every such shopping center there is the inevitable new supermarket and the inevitable failure of several more old-time neighborhood grocery stores nearby.

Furthermore, in the supermarket the personal touch is gone. You become an explorer – a searcher for things! No polite man nor smiling woman to sell you on a particular brand. Nothing but the frustrating clatter of push carts bumping together in aisles that are all too small for the customers and then the waiting in line to get out of the awful place.

Some folks remember the 30's for miniature golf. We wonder if 20 years from now the supermarkets will be as nearly extinct as miniature golf courses are today. Very likely so; 20 years from now we suspect they'll have super-supermarkets.

° ° °

BUT GETTING BACK to the reality of today's supermarkets, your only salesman there is the silent packaging expert, who designed your package in the first place, and his voice, loud and forceful though it may be, cannot be heard in every supermarket as he goes about his work in the comfort of his working quarters designing new packages for other concerns. *His voice must be seen.*

Standing as a little child when sides are being chosen for a game at school, your package, like the little child, ultimately will be selected. The little child knows if he

Tank Car, Truck Body and Wall Brush

Every Brush for the Dairy

Write Us for Complete Catalog

Two Handle Holes — Wood Block 3¼ x 8 in. — 2" trim

No. 1115—White Tampico Fibre
No. 3115—Black Bristle Mixture
No. 2115—Gray Hair
No. 5115—Union Fibre
No. 9115 — Nylon

ALBRA TRADE MARK BRUSHES

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8833 Seventy-Eighth Street
Woodhaven 21, New York

KVP SPECIALISTS IN **Papers** FOR THE **dairy industry**

KALAMAZOO VEGETABLE PARCHMENT COMPANY
PARCHMENT • KALAMAZOO • MICHIGAN

isn't selected for one side, he eventually will be chosen by the other; and your package, too, if it isn't bought by some customer will be selected by your route salesman as one that must be returned to the dairy because it is too old to be sold.

It goes without saying in these quick-shopping days in the supermarket, that the milk dealer's package must stand out.

° ° °

IF YOU ARE LIKE BOB KAPP, the individualist, who sells Edisto Farms Dairy milk in Columbia, S. C. supermarkets (and lots of it) packaged only in glass, the hood and bottle, as his do, must speak out.

Or if you are the conformist and have the milk you hope to sell in supermarkets packaged in paper, the single-service container must stand out over your competitor's as the Waldorf-Astoria looms over the most obscure hotels in New York City.

And that, under ordinary circumstances, isn't an easy job, but the milk dealer is limited in his packaging by the similar shape of his and his competitor's packages, and even worse, in many areas certain wordings must clutter up the packages to comply with the whims of public health officials.

In packaging, the milk dealer does not face an easy job and in some dairies it is not considered all worthwhile.

But isn't it?

If your milk sales are to be what you think they ought to be, packaging is a job you have to do.

MIF GRADUATES 32ND SALES CLASS

Members of the thirty-second class of the Milk Industry Foundation's Sales Training Institute were awarded certificates of graduation at a luncheon at the Hotel Statler, Washington, D. C., July 30.

Seated (left to right) Burger Thistel, Western Maryland Dairy, Inc.; Raymond Tracy, Alfar Creamery Company; Robert Chaney, Carnation Company; George Harlan, Borden's Dairy; Lloyd Terwilliger, Southern Dairies; Cliff Penvose, Borden's Huntington; Randy Sexton, Vero Beach Dairy. Standing (left to right) Arnold Stone, Arden Farms Company; Fred McAdams, United Farmers of New England; Ray Jones, Ideal Milk Company; Henry Almonte, Federal Dairy Company; Clair Hill, Borden's Dairy; Charles Kinskey, Ideal Milk Company; William Genszler, Carnation Company; Harold Morgan, Roberts Dairy; Larry Smith, Home Town Dairies; Jay Struble, Borden's Dairy; Louis Carver, Long Meadow Farms; Robert Armstrong, A. B. Monroe Dairy; Thomas W. Douglas, Educational Director, Milk Industry Foundation.

In presenting the certificates, Mr. Roberts Everett, Executive Vice-President, Dairy Industries Supply Association, complimented the new graduates, pointed to the tremendous opportunities that lie ahead, and congratulated them on their participation in an industry which all can serve with pride.

Yundt Airbrush Dairy Bottle Washer

Only Yundt gives you *all* these advanced engineering features: Airbrush rinsing, submerged hydro soaking, caustic filtration, walking beam loading, unitized construction, external heating . . . *and* the lowest year-in-year-out maintenance cost of any washer on the market. Contact your nearest Y-B agent, or wire factory for complete information.

New Packaged Filtering Unit —

Now . . . every plant with a capacity of 100 bottles or more per minute can enjoy the advantages and economies of Yundt Caustic Filtration. Regardless of make . . . if your bottle washing equipment is reasonably new and in good condition, it will pay you to investigate the packaged filter unit shown above. Operating savings alone will repay your initial investment many times over during the life span of your present equipment.

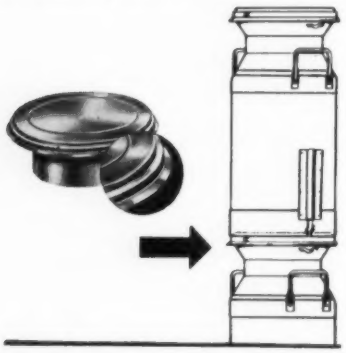
YUNDT-Bottlematic Corp.

Plant and general offices: 3670 Muddy Creek Road, Cincinnati 38, Ohio, U.S.A.
Export Division: 824 Dixie Terminal Bldg., Cincinnati 2, Ohio, U.S.A.

USING OUR SEPARATOR

Covers for Bulk Milk Dispenser Cans

MILK DISPENSER cans with bottom clips or with side hose guard can be readily stacked with the help of the new Superior 7¼" stacking cover. The new cover,



according to its maker, is designed to enable the stacking of either type dispenser can.

The outer rim of the umbrella-type stacking cover is formed into a ledge on which the bottom hoop of a stacked can rests securely. Made of two separately tinned parts, the components are fused together during the final tinning processes. All cracks and crevices are filled with pure tin during this operation. The cover is provided with a vent hole to assure free flow of milk.

Superior Metalware Division, John Wood Co., 509 Front Ave., St. Paul 3, Minn.

•

Nylon Brushes

THE Sparta Brush Co. is now offering all of its dairy brushes in either white or black nylon at no increase in price. Dairy operators who have previously preferred white nylon may now readily purchase their favorite dairy brush from Sparta filled with this clean-looking, attractive bristle material.

All Sparta brushes are made only with genuine Du Pont "Tynex" nylon bristles which have been found to have firmness, full flexibility, and exceptionally long wear.

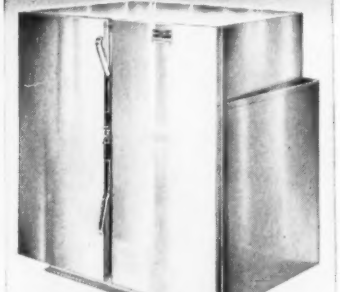
Sparta Brush Co., Inc., Sparta, Wisconsin.

•

Fresh Orange Juice

A METHOD of processing orange juice so that it can be kept in cold storage for months without losing flavor or vitamin content, has been perfected by Fruit Industries, Inc.

The company has been distributing the fresh juice nationally since March, through dairies, under its Tropicana trade name. Consumers may now buy fresh, pure orange juice the year 'round.



ALL ALUMINUM

Hollingsworth TRUCK REFRIGERATORS

- Stainless Steel runners reduce case friction.
- Completely sealed. Moisture cannot decompose insulation.
- Padlock holes in latches.
- Holds 2 ice trays plus 3 quart cases and 1 pint tray.
- Moderately priced.

● Here is a truck refrigerator that affords all of the "most-wanted" features. This quality box features lifetime, all aluminum, airplane type construction . . . riveted for super strength. Nickel plated screws and stainless steel hardware make the entire assembly rust-proof. Double than normal insulation gives you maximum cooling efficiency and economy. Fifty pounds of ice maintains a 44° temperature for 30 hours in a 96° outside heat. Best of all, the Hollingsworth Truck Refrigerator is designed for complete space utilization. Model illustrated fits contour of Divco Truck Body.

Standard Boxes in Stock for All Makes of Milk Delivery Trucks . . . Special Boxes Made to Order.

JOHN R. HOLLINGSWORTH CORP.
CLIFTON HEIGHTS PENNSYLVANIA

SEE what's new in Sani-Matic WASHING EQUIPMENT

•

Dairy Industries Exposition
BOOTH M-7

•

THE Schlueter CO.
DESIGNERS AND MANUFACTURERS OF WASHING AND STERILIZING EQUIPMENT FOR THE DAIRY INDUSTRY
JANESVILLE, WISCONSIN

Nothing is added and nothing is taken away from the juice during processing, according to Anthony T. Rossi, president of Fruit Industries, but it will now stay fresh for months. Each paper carton of Tropicana fresh juice has the USDA stamp of approval.

Fruit Industries, Inc., Bradenton, Florida.

●

Low-Lift Platform Truck

A LOW-LIFT platform truck equipped with four-wheel steering to provide maximum ease in negotiating right-angle turns from and into narrow aisles is described in a four-page folder issued by the Elwell-Parker Electric Co.

With a load capacity of 4,000 pounds, the truck, (Model EP4-11), is available with both electric or gasoline-electric powered units and uses a two-wheel drive. It has a maximum length of 125 inches, a width of 41¾ inches, and turns in intersecting aisles of 69 inches.

The Elwell-Parker Electric Co., 4205 St. Clair Avenue, Cleveland 3, Ohio.

Line Strainer

WISNER Manufacturing Corp. presents a new line strainer known as LineStraiN, for the protection of all pumps, milk, brine, water, etc.

The unusual feature of LineStraiN (pat. pending) is the fact that it can be inserted in existing lines without the necessity of disturbing them, and with no fittings of any kind required.

The strainer is made entirely of Type 304 Stainless Steel and consists of a heavy gauge disc perforated with 3/16" holes countersunk on both sides to eliminate sharp edges.

The disc is cut to fit the contour of the pipe when placed diagonally across the pipe and is held in position by means of two spacer rods, welded to the center of the disc on opposite side, each extending to the opposite end of the strainer but not welded so as to create a spring action to hold it snugly in position.

It is made to fit *all sizes* of tubing and iron pipe.

Wisner Mfg. Corp., 122 Hudson St., New York City 13, N. Y.

●

Quick-Set Thermoregulator

A NEW "QUICK-SET" thermoregulator can be set with the flick of a finger for room temperatures to 550° F. with a sensitivity of .02° F.

The new design of this thermoregulator, with special platinum contact points, 75 pounds of hydrogen pressure to stop discharge at contact points, and triple vacuum distilled mercury insures superior, trouble free performance.

Philadelphia Scientific Glass Co., Abington, Pa.

It's easier to ROLL 'EM!

"Grab and Go" with
FIG. 95A MILK CASE TRUCK

Save wear on milk cases and reduce bottle breakage, while you also cut your handling costs. With Fig. 95A one man handles 6 to 8 milk cases easily, quickly, safely — full or empty. Takes most makes of wood or wire cases for quart or pint bottles. Cases can be stacked close together. Adjustable hook fits into hand hole of bottom case and is locked by hand lever. Supporting rack is pushed against cases to assure proper balance when truck is tipped back — and you're ready to roll! Get our prices on Fig. 95A!

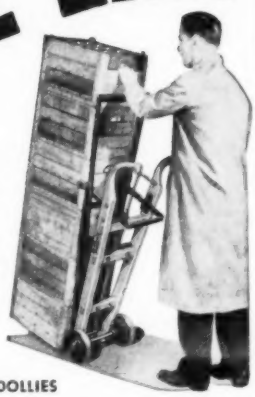


FIG. 1154 MILK CASE DOLLIES

Keep your cases on wheels with these sturdy, open angle inexpensive dollies. They'll quickly pay their way by reducing breakage and saving wear on case bottoms.

Fig. 1154NB-BH

Available in sizes and styles for single, double or triple stacks of round or square bottle cases. Removable bar handle and perforated sheet steel bottom, as shown on Fig. 1154NB-BH, are optional equipment. Steel frames with rust-resisting finish. Four double ball race swivel casters for easy movement in any direction. Semi-Steel or Solid Rubber Oilite Bearing Wheels.

Fig. 1154 A

See Nutting Booth 116
DAIRY INDUSTRIES EXPOSITION
Atlantic City — October 25-30

Consult your jobber or write direct for literature.

SINCE 1891 Nutting TRUCK AND CASTER CO.
1170 DIVISION ST., FARIBAULT, MINN.

See Why...

OASIS ORANGEADE

is America's finest, fastest-selling dairy orangeade

At Booth C-2...

Dairy Industries Exposition

ATLANTIC CITY
October 25-30

PS: If you can't get to the exposition, don't let it stop you from getting OASIS' extra-profit deal! Call or write...

MISSION DRY CORPORATION
P.O. Box 2477, Terminal Annex, Los Angeles 54, California
Sales Offices: 510 N. Dearborn St., Chicago 10, Illinois
105 Hudson Street, New York 13, New York

Irish Moss Extractives

THE SEAPLANT CHEMICAL CORPORATION has recently undertaken the publication of a house organ entitled *SeaKem Extracts.*

Vol. I, No. 1 of this new house organ features uses of "Colloids Out of the Sea"—SeaKem Irish Moss extractives—in food, milk, ice cream, drug and industrial stabilizing problems. Also included is technical information regarding the behavior of SeaKem stabilizers, and testing tips.

To be put on the mailing list, write Mr. Byron Spence, General Sales Manager, Seaplant Chemical Corporation, 63 David St., New Bedford, Mass.

●

Leak-Proof Quick-Seal Hose Coupling

A QUICK connect-disconnect hose coupling for water, oil, steam, gas and chemical lines, which provides permanent freedom from leakage, is described in a bulletin published by Titeflex, Inc., entitled "Titeflex Quick-Seal Coupling."

Also described in the bulletin are single- and double-check valve modification of this coupling. Coupling accessories, such as right-angle connections and dirt-exclusion covers are also described.

For copies of the Quick-Seal Coupling bulletin write to Industrial Sales, Titeflex, Inc., Hendee Street, Springfield 4, Mass.

●

Heater Cables for Low Temperature Doors

HEATER CABLES to prevent the formation of ice on the frames of low temperature doors have been developed by the Jamison Cold Storage Door Company.

The cables are thermostatically controlled and embedded in the frame where the gaskets of the door make contact. They are laid in asbestos lined channels cut in the casing. When desired, they also may be embedded in the sill.

In operation, the heater cables keep the gasket contact areas of the frame above the dew point temperature. This prevents moisture condensation and thus eliminates the formation of frost or ice at excessively low temperatures . . . even below –50°F.

Jamison Cold Storage Door Co., Hagerstown, Md.

Handi-Pour Holder

FOR EASIER handling of the popular half-gallon size milk carton Sheridan Products Inc. have brought out the "Handi-Pour."

This is a light-weight frame made of high grade, polished aluminum band, with an attractive and comfortable-feeling plastic handle. The

Announcing a

NEW

Radically Different

Bulk Milk Dispenser

— New in Design

— Revolutionary In

SIMPLICITY OF OPERATION

See It at Booth J2
DISA EXPOSITION
Atlantic City

Monitor Process Corporation
192 BRIGHT STREET JERSEY CITY 2, N. J.

THE DAIRYMAN'S CARTON

"CRUSH-PROOF"

NO GLUE

Egg-Safety

CARTONS

Use the famous crush-proof, no glue, "Egg-Safety" carton, made with double-duty fins that provide all-around outside protection. Double strength and double display value.

Write for samples.

GAIR | EGG-SAFETY CARTON DIVISION

ROBERT GAIR COMPANY, INC. 155 EAST 44TH STREET • NEW YORK, N.Y.

large, economy size carton is securely held in place in this rigid frame—the combination making a very handy and disposable milk pitcher.

Sheridan Products, Inc., Racine, Wisconsin.

•

Ultra-Violet Lamp

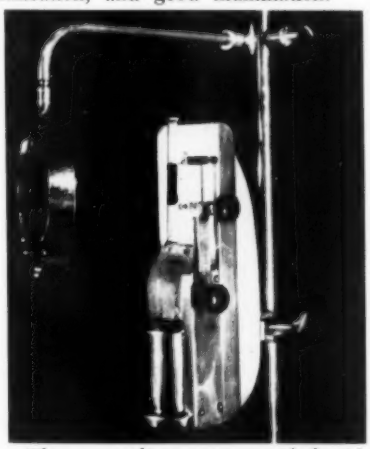
A NEW IMPROVED Blak-Ray Model 3X-4 high-intensity long wave ultra-violet lamp with applications for the detection of adulteration, impurities, spoilage, and filth in foods, containers, and related materials, was announced by Ultra-Violet Products, Inc.

The invisible "black light" rays cause a fluorescence, thus many contaminating elements that are invisible, or nearly so, in ordinary white light, stand out with startling clarity when exposed to the Blak-Ray. This makes the lamps useful for inspection, sorting, and analysis, as differences in fluorescent coloring are almost a sure indication of variations in the composition, source, or history of any two or more materials.

Ultra-Violet Products, Inc., South Pasadena, California.

Babcock Test Calipers

A NEW TESTING device has been produced, said to eliminate most human error in the Babcock Test. Precision Calipers consist of pointers with hair line accuracy and micrometer adjustment, magnification, and good illumination.



The new calipers are provided with pointers similar to hairline in a surveyor's telescope, regulated with rack and pinion for close adjustment.

The Windsor Company, 999 N. Main St., Glen Ellyn, Illinois.

Heavy-Duty Plate Heat Exchanger

A NEW HEAVY-DUTY HEAT EXCHANGER unit, known as the CP M.S. Crescent Plate Heat Exchanger, has been introduced by The Creamery Package Mfg. Company to meet all dairy heat exchange requirements.

Designed as a primary or secondary plate heat exchanger for the small dairy or larger plant where stainless steel exterior finish is not required, the new unit features mild steel surfaces, grit blasted to a smooth finish and finished with a gray plastic, corrosion-resistant paint.

The new M.S. Crescent provides a low pressure drop that makes it ideally suited for heating, cooling, regenerating or H.T.S.T. pasteurizing a wide range of free-flowing liquid products. Either hot water or exhaust steam can be used for heating and cooling is achieved by using chilled water or brine.

Write The Creamery Package Mfg. Company, 1243 W. Washington Blvd., Chicago 7, Ill.

"40% increase in Sales of . . . COTTAGE CHEESE thru Wolf Bottle Collars"

Dairies everywhere are reporting similar success stories... after seeing how Wolf Bottle Collars really do sell "extras" to the housewives!

Wolf's 34 inexpensive, colorful stock designs advertise butter, eggs, cream, juices, chocolate and buttermilk, seasonal specials and other products.

Write for Samples and prices now!

Extract and Flavoring manufacturers
Our Bottle Collars can increase sales of your products, too! Send for folder.

THE WOLF ENVELOPE COMPANY
1749 EAST 22nd ST. CLEVELAND 1, OHIO

Please send me Wolf Bottle Collar samples and price list...

Name_____
Firm_____
Address_____
City_____ State_____

Only MASTER-BILT FRONT OPEN MILK COOLERS offer LEKTRO-TEKTOR® protection against CORROSION of WATER TANK

Adds years to the life of the unit. Special magnesium bar absorbs corrosion, diverting it from sides and bottom of water tank. Gives more for the milk cooling dollar.

Designed to give greater milking convenience . . . bigger milk profits . . . the Master-Bilt Front Open Milk Cooler offers these additional outstanding features:

• Fast Cooling • Easy Loading • Easier Cleaning • Sealed Condensing Unit • Economy

4-6-8-12 CAN MODELS
EXTRA! Adaptable for piping milk direct to cans.

Immersion units available, too (without Lektro-Tektor), in the complete Master-Bilt line. Write for literature and prices.

MASTER-BILT REFRIGERATION MFG. CO.
923 PALM ST.-ST. LOUIS 7, MO.

WANTS AND FOR SALES

Classified Advertising Information

To ensure appearance of your ad in a given issue, copy should be in our hands by the 10th of the previous month (for instance, copy in March 10th for April issue). We cannot guarantee insertion of your ad in classified columns if copy is received after the above-mentioned date.

All Classified Advertisements, except Position Wanted

Lightface type—5c per word ($1.00 minimum)
Boldface type—10c per word ($2.00 minimum)

Include name and address in word count, except for blind ads.

Position Wanted

Lightface type—first 50 words for 50c. Additional words 2c each.
Boldface type—first 50 words for $1.00. Additional words 4c each.

Include name and address in word count, except for blind ads.

Box Numbers — 25c additional charge in United States.
50c additional charge outside United States.

Do not include your name and address in word count.

No classified advertising will be accepted to run with borders or special spacing. All such advertisements are considered to be display ads, and will be billed as such. (Rates and mechanical requirements on request.)

All advertisements accepted in good faith. We cannot be responsible for reliability of ads. If you wish further information on advertiser, request references from him.

EQUIPMENT WANTED

FILLER, preferably a late model 10 valve Cemac equipped with 38mm. Dacro capper heads. Will consider 14 valve if late model and properly priced. Write to DURLING FARMS, White House Station, New Jersey. 10-M-54

Fully refrigerated tandem TRAILERS, 32-foot length, 4 to 6 inch insulation on sides, roof and floor. Must have side and rear doors and steel floor. Send photo and full description, age, price, etc. Reply to BOX 324, AMR. 10-M-54

WANTED TO BUY, two used CREAM OIL VATS, 600 to 800 gallon capacity. Write to the TRIPPLY "F" FOODS COMPANY, P.O. Box 342, Wapakoneta, Ohio. 10-M-54

BOTTLES, quart, round, 56mm. used. STORAGE TANK, refrigerated, 400 to 500 gallon; one ton Vilter Snow Ice Head, ammonia or freon. Write to ROBERDS DAIRY, 2500 Tennessee Ave., Savannah, Ga. 10-M-54

EQUIPMENT FOR SALE

Grade A MILK TRUCK TANK, 1,000 gallon, stainless steel, equipped with pump mounted on K7 1941 International. Motor completely overhauled, like new, new tires, price, $4,500.00. Write to SUPERIOR DAIRY, 1223 1st Ave. E., Newton, Iowa. 10-M-54

CUT COOLING COSTS. Self closing doors mounted just inside your cooler will keep the cold inside during loading or unloading when it is advantageous to prop the door open. We have in stock 3'6" x 6'6" genuine York-Jamison double batten auto-close doors, complete with removable track heads for 7'2" track. 1½" corkboard insulation, 14 gauge metal clad. Brand new. Original factory crates. $98.00 each. Freight prepaid in the United States. Door height will be altered for anything up to 11'2" track for $15.00 additional. Write to THE BIMEL COMPANY, 2600 Colerain Ave., Cincinnati 14, Ohio. 10-M-54

REBUILT DAIRY MACHINERY. Write to OHIO CREAMERY SUPPLY COMPANY, 701 Woodland Ave., Cleveland 15, Ohio. 10-M-54

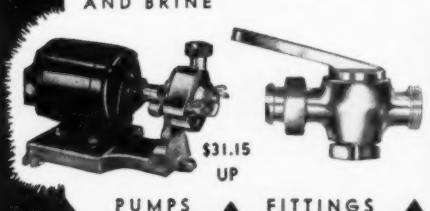
EQUIPMENT FOR SALE

LIQUIDATION SALE AT WALKER GORDON FARM, NEEDHAM, MASS. THE WORLD FAMOUS WALKER-GORDON ROTOLACTOR. The feature attraction at the New York World's Fair, this Rotolactor is one of two in the world. It is in perfect operating condition. The Rotolactor automatically milks 75 cows per hour through every step of a completely scientific milking operation—never touched by hand. If desired, an expert operator is available to assemble and operate the Rotolactor anywhere in the world. DAIRY EQUIPMENT. 3 STORAGE TANKS with agitators, Pfaudler, 650 gallons, glass lined, King gauge measuring devices and temperature recording devices and front manhole. STORAGE TANK, Creamery Package, 1,000 gallon, stainless steel (same as above). PASTEURIZER, Electro pure flash, 500 gallon per hour, complete. SPRAY VAT PASTEURIZER, Cherry-Burrell, 100 gallon, with agitator, recorder and pump, stainless steel inside. BOTTLE WASHER, Cherry-Burrell, Multi-soak, 8 wide. BOTTLE FILLER, Cherry-Burrell, G-100, 10 valve, 48mm. Standard Duplex aluminum CAPPER, left hand, 48mm., 4 heads, 75 bottles per minute with complete conveyor system. Will sell as entirety or separately. ICE BUILDER, sweet water, for about 20,000 quarts equipped with 2 brine pumps and 5x5 York ammonia compressor. Complete FREEZING ROOM with Creamery Package self-contained ammonia unit, 5x5, 15 hp. motor. ICE CREAM CABINET, 12 hole. Cleaver-Brooks 80 hp. FC STEAM GENERATOR, working pressure, 15 lbs. 1948 Ford insulated wholesale milk delivery TRUCK, 12 foot body. Write to MAX GARELICK, INC., 74 Woodcliff Road, Chestnut Hill 67, Mass. 10-M-54

FILLER, Ex-Cell-O, model MT, for half gallon Ilreco bottles, used less than 8 months. Will sacrifice for $4,200.00, F.O.B. Cincinnati. Reason for selling—need larger machine. Write to WILSON DAIRY PRODUCTS, 2125 Reading Road, Cincinnati 2, Ohio. 10-M-54

STAINLESS STEEL **THOMSEN** NICKEL ALLOY

SANITARY AND BRINE VALVES LINE FILTERS



PUMPS FITTINGS TUBING

L. C. THOMSEN & SONS, INC., KENOSHA, WIS.
Sanitary Equipment for the Processing Industries

You'll sell more Dairy Products
WITH THE NEW
G. P. GUNDLACH & CO.
1955 Program
SEE YOU AT
BOOTH W-33
ATLANTIC CITY
G. P. GUNDLACH & CO.
1201 W. Eighth St. Cincinnati 3, Ohio
(SEE US ABOUT NEW, SENSATIONAL HENNY PENNY EGG NOG, TOO)

EQUIPMENT FOR SALE

PASTEURIZERS, Steriline and Cherry-Burrell, 300 gallons. EVAPORATOR, stainless steel, double effect. SPRAY DRIER, Buflovak 500 lb. Cherry-Burrell, 450 lb., "Compak" stainless steel WEIGH CAN with SCALE and RECEIVING VAT. 6 wide Cherry-Burrell Model "E" BOTTLE WASHER for ½ gallon bottles. 4 wide Creamery Package BOTTLE WASHER. 7,200 lb. and 15,000 lb. stainless steel direct expansion CABINET COOLERS. Jensen stainless steel CABINET COOLER, capacity 24,000 lbs. raw milk per hour. 250 gallon stainless steel SURGE TANKS. 3,000 gallon stainless steel STORAGE TANKS. 100 to 200 gallon stainless steel PASTEURIZERS. 6-18 and G-70 Cherry-Burrell FILLERS, also G-100 FILLER with 38mm. Dacro Cappers. 75 to 1,500 gallon HOMOGENIZERS or VISCOLIZERS. 4,000, 6,000 and 20,000 lb. De Laval CLARIFIERS. Damrow and Creamery Package Rotary CAN WASHERS. 2" Cherry-Burrell Flex-Flo stainless steel Centrifugal PUMPS, 2 hp. International BOILER, Oil fired, 35 hp. Many other desirable items—send us your inquiries. Write to LESTER KEHOE MACHINERY CORPORATION, 1 East 42nd St., New York 17, N. Y. 10-M-54

2 AMMONIA COMPRESSORS, used and in good condition, Worthington, size 7x7, vertical, single acting. $300.00 each. Write to ALEXANDER ICE & COAL CO., Franklin, Ind. 10-M-54

HOMOGENIZER, Manton-Gaulin, 200 gallon, motor driven with 10 hp., 3 phase, 60 cycle, 220/440 volt motor and V belt drive. A running in oil type machine equipped with late type stainless steel sanitary head and pressure valve, such as will pass all U. S. Public Health requirements. Machine about 4 years old but used only 15 months. Serial number 1050474016; like new condition. Price $1,000.00 F.O.B. DuQuoin, Illinois. Write to GEMMILL DAIRY, 510 E. Cole St., DuQuoin, Ill. Phone DuQuoin 880. 10-M-54

New and used 38mm. square pints and half pints. Used cases. Write to COLLEGE CREAMERY, Collegedale, Tenn. 10-M-54

EQUIPMENT FOR SALE

VISCOLIZERS and HOMOGENIZERS, completely rebuilt and guaranteed. Send for bulletin and prices. Write to OTTO BIEFELD COMPANY, 118 No. Water St., Watertown, Wis. 10-M-54

CHEESE VAT, Girton, 500 gallon, stainless steel liner. Replaced with larger vat. FILLER, G-7, with Model B Dacro adaptation, good condition. Write to CREIGHTON'S CREAMERY, 360 W. Fifth St., Elmira, N. Y. 10-M-54

Used WIRE CASES for round gallon jugs, five bottles per case, $1.35 per case, F.O.B. Lake Geneva, Wisconsin. Write to STUART W. JOHNSON & COMPANY, 611 Main St., Lake Geneva, Wis. 10-M-54

Please address replies to blind advertisements as follows:

Box .....

AMERICAN MILK REVIEW
92 Warren Street
New York 7, N. Y.

BUTTER PRINT MACHINE, Doering, Model 6H34, used, very reasonable. Inquire AL BRODY, 514 Westchester Ave., Bronx 55, N. Y. CYpress 2-0565. 10-M-54

WEIGH and DUMP UNIT, R. G. Wright, 400 lb. practically new, stainless steel construction with all rounded corners and edges. 4" quick-opening valve. Unit is attached to a heavy duty Fairbanks-Morse 500 lb. scale, in excellent condition. Portable sample cart and writing table, price, $800.00. Riggs Dairy, Mulberry, Ind. 10-M-54

HOMOGENIZER, Manton-Gaulin, 2 stage, Model E, 1,200 gallons per hour, with high starting torque 40 hp., 3 phase, 60 cycle, 220 volt motor, excellent condition, 4 years old. Reply to BOX 328, AMR. 10-M-54

ARTOFEX mixer, IDEAL FOR ITALIAN CHEESE PRODUCTION, simulates hand mixing. Write to PET-RITZ FOODS, BEULAH, MICH. 10-M-54

EQUIPMENT FOR SALE

PASTEURIZER, Creamery Package, 8,000 lb. short time, all new stainless steel plates complete with control panel and No. 25 B. B. Waukesha Pump with vari-speed drive, Price $3,500.00. 2 PASTEURIZERS, Creamery Package, 200 gallon, stainless steel inside and outside, complete with motor and agitator, Price $600.00 each. PASTEURIZER, Creamery Package, Horizontal Coil, 600 gallon, stainless steel lined insulated covers, tinned copper coils, diamond steel walk both sides, Price $1,000.00. CLARIFIER, DeLaval, No. 66, with stainless steel discs complete with motor, Price $1,000.00. BATCH FREEZER, Creamery Package, 80 quart, complete for ammonia, Price $450.00. Dry Ice Power Saw, $100.00. All above F.O.B. Boston, Mass. ROTARY CAN WASHER, Creamery Package, 6 cans per minute, perfect condition with extra pumps, Price F.O.B. Boston, Mass., $500.00. Write to TOLINS & COMPANY, 105 Hudson St., New York 13, N. Y. 10-M-54

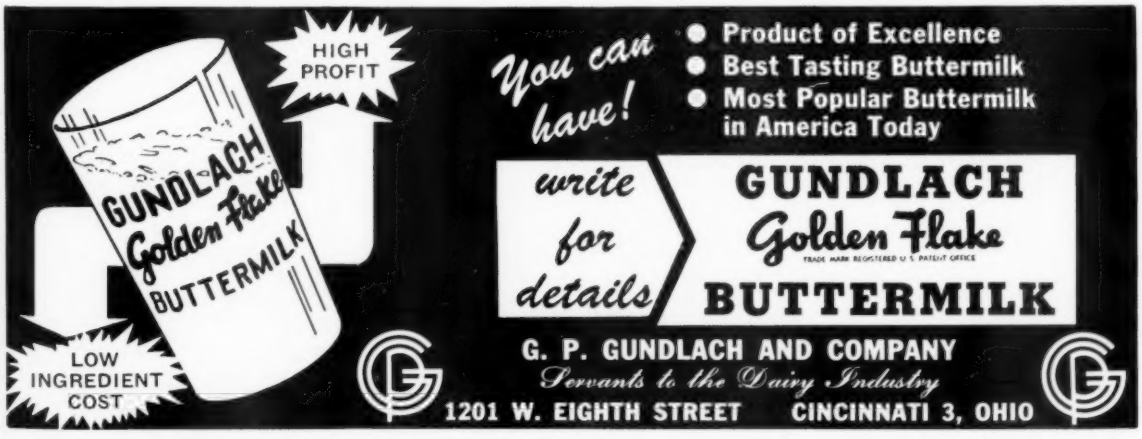
PASTEURIZER, Purity, 200 gallon, stainless steel, complete with motor, pipes and recording thermometer. Also a 5 valve Pfaudler FILLER and CAPPER. All in excellent condition. For information contact REX O. DEMPSEY, Booneville, Ark. 10-M-54

NU-VATS, 2 Angevine Spray Type, 1,000 gallons, EXCELLENT CONDITION stainless outside finish, complete with Stainless covers, dial thermometer, 3" sanitary valve, pump and motor.

REASON FOR SELLING—Being replaced with 4-1,860 gallon Angevine NU-VATS, price $1,500.00 each. Write or call, VIRGIL JOHNSON PRODUCERS CREAMERY CO., Springfield, Mo. 10-M-54

MILK TANK, with agitator and insulation, stainless steel, 3,000 gallon truck rail demountable type. Write to PERRY EQUIPMENT CORPORATION, 1409 North 6th St., Philadelphia 22, Pa. 10-M-54

BOTTLE WASHER, Meyer Dumore, "Jr.," 12 wide. Used 8½ years, replaced with larger unit. Rebuilt and in excellent working order to handle 38mm Dacro. We will change to handle 48mm if desired. $5,000.00 F.O.B. McDONALD DAIRY COMPANY, Box 870, Flint, Michigan. 10-M-54



EQUIPMENT FOR SALE

Now!! SANITARY VALVES resurfaced for a fraction of the price of a new valve. Send us those valves that have been too difficult for you to resurface. Satisfaction guaranteed. Write to STUART W. JOHNSON & COMPANY, 611 Main St., Lake Geneva, Wis. 10-M-54

CHEESE VAT, 7,000 lb. capacity, stainless steel. Write to P. R. JOHNSON, Moose Lake, Minn. 10-M-54

EVAPORATOR complete with operating auxiliaries, etc., stainless steel double effect. Capacity for concentration skim to 42% solids for 850 lbs. per hour dryer. Write to HENSZEY COMPANY, Watertown, Wis. 10-M-54

NEW low prices on plunger seals for your C.P. and M.G. HOMOGENIZER. Send for trial offer. Advise style and capacity of homogenizer. Write to STUART W. JOHNSON & COMPANY, 611 Main St., Lake Geneva, Wis. 10-M-54

POWDER PACKAGING EQUIPMENT, Stokes and Smith Model "G-1-D" FILLING MACHINE, complete with compressor. Standard Knapp Heavy Duty LABELING MACHINE. Swanson Semi-Automatic Cap Tightener, hopper, conveyor, etc. Write to McDONALD COOPERATIVE DAIRY COMPANY, Chesaning, Mich. 10-M-54

FARM EQUIPMENT

Buy surplus farm tools, machinery, trucks, feed, etc., direct from the Government. Send $1.00 for Government Bulletin to Surplus, BOX D213, East Hartford 8, Conn. 10-M-54

PRINTING SERVICE

2-in 1 MILK CARRIERS for PYRAMID TYPE BOTTLES. Buy direct—no middleman—no commissions. Sturdy—Folded—holes punched out—Your Dairy's name printed on top of carrier. Dairies using these carriers show a sharp increase in sales. Why sell one quart when you can sell two? Samples and prices on request. Write to VOGUE PRINTING COMPANY, 2502 Avalon Ave., N.E., Canton, Ohio. 10-M-54

FLAVORINGS

PURE tree-ripened LIME Juice, ORANGE Juice or TANGERINE Juice for Better Sherbets. Sample order 12 Number 10 cans, any combination, only $15.00. Write to FLORIDA CANNERS, INC., Eustis, Fla. 10-M-54

DAIRY GRAPE-ADE is profitable. Your total cost, 9c per quart. Write for sample to BRADWAY CHOCOLATE COMPANY, New Castle, Ind. 10-M-54

DAIRY ORANGE-ADE BASE, sweetened. Mixes one to six with water. No sugar needed. $1.60 per No. 10 tin. One can per case free for sampling. Write for sample BRADWAY CHOCOLATE COMPANY, New Castle, Ind. 10-M-54

ORANGE JUICE concentrate, unsweetened. One gallon makes 18 gallons finished orange drink. Simply add sugar and water. Per gallon, $3.50, f.o.b. Chicago; less 2% check with order. Cartons of four, one gallon jugs. Write to NORWALK JUICE LABORATORIES, 6548 N. Sayre Ave., Chicago 31, Ill. 10-M-54

NON-SETTLING CHOCOLATE MILK made from cold milk, no heat needed. Order a trial case, six No. 10 tins of Bradway Cold Mix Non-Settling, Chocolate, or ask for free sample. Write to BRADWAY CHOCOLATE COMPANY, New Castle, Ind. 10-M-54

BUSINESS OPPORTUNITY

PROCESSING DAIRY PLANT established 1923, southern Michigan, steady growth, near new building, equipment in excellent condition. Near 4,500 quarts daily, 8 every other day routes. High profit, owner retiring, terms. Write to BATEY LaNOBLE REALTY COMPANY, 1516 E. Michigan Ave., Lansing 12, Mich. 10-M-54

PROCESSING MILK PLANT—South-central Michigan, quality products, 8 routes, plant capable of doubling volume. Nearly new building, excellent equipment. A profitable operation for a REAL Dairyman. Terms. Contact W. A. Batey, LaNOBLE REALTY COMPANY, 1516 E. Michigan Ave., Lansing 12, Mich. 10-M-54

For sale or lease, small MILK and ICE CREAM plant, equipment new, built in two separate buildings for manufacture and retail in Red Bluff, Calif. Write RED BLUFF, Box 150. 10-M-54

2 MILK PLANTS, one bottles in glass, one in paper. One manufactures ice cream, both distribute ice cream and milk in glass and paper. Both are well established and in business for many years. Reason for selling—other business interests. Reply to BOX 327, AMR. 10-M-54

SKIM MILK WANTED: To those only who desire a permanent outlet. Some whole milk also for cheese. To be processed on premises—location New York State or nearby. Please don't answer unless you need a steady account. You must furnish vat and steam and space large enough to place a draining table. Reply to BOX 322, AMR. 10-M-54

HELP WANTED

CHEMIST for quality control in expanding butter and cheese plant in Chicago. Steady position. State qualifications and salary expected. Reply to BOX 325, AMR. 10-M-54

Experienced retail Milk Solicitor. High quality products to offer in fast growing community. Excellent opportunities for man wanting to make money. Commission basis. Please write fully, stating past experience and giving references. Reply to BOX 315, AMR. 10-M-54

LOW IN COST — HIGH IN QUALITY

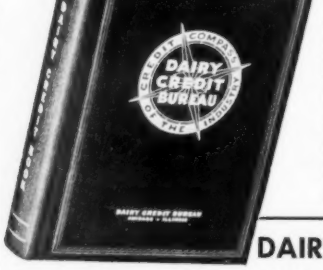
FLAV-O-LAC FLAKES

the guaranteed culture for fermented Milk Products Uniform Aroma, Smoothness and Flavor.

A DIVISION OF DALARE ASSOCIATES

SINGLE BOTTLE $2.00 NEEDS ONLY ONE PROPAGATION

THE DAIRY LABORATORIES
PHILADELPHIA 3, PA.
Branches • New York, Baltimore, Washington



PROSPECTS TODAY AND EVERY DAY...

are yours in the *annual* issue of Dairy Credit Book.

For 20 years Dairy Credit Service has paid dividends to subscribers. Find out about it now and without obligation.

DAIRY CREDIT BUREAU
1740 Greenleaf Ave., Chicago 26, Illinois

HELP WANTED

Manager for privately-owned dairy, operating 20 retail and wholesale routes in Central New York Metropolitan city. Prefer experienced man with college education, now employed and capable of successfully managing entire operation, including retail and wholesale sales, general administration and processing. Salary plus percentage of profits. Guaranteed $10,000.00 yearly. Do not apply unless in $10,000.00 to $15,000.00 classification. Present owner desires to devote time to other investments. Give details in first letter. All replies confidential. Reply to BOX 330, AMR. 10-M-54

POSITION WANTED

CREAMERY working foreman, understands all plant operations and sanitary clean up of equipment. Pasteurize milk and cream test standardize, make sour cream, commercial buttermilk, cottage cheese, baker's cheese, chocolate milk and other dairy products. 50 years old; no bad habits; can come on short notice. BOX 285, AMR. 10-M-54

SALES MANAGER experienced in Sales Promotion, building and managing Retail and Wholesale routes. Successful sales background. Interested in Management Position with medium sized dairy. M.I.F. Sales Training Graduate. Excellent references. Reply to BOX 326, AMR. 10-M-54

PLANT MANAGER or working foreman in milk and ice cream plant. Age 39, 18 years in this business. Now plant manager in the East. Excellent reason for leaving. Reply to BOX 317, AMR. 10-M-54

SALES PROMOTION

TRUCK LETTERING and TRADEMARK DECALS made for your truck and store advertising. Easy to apply, uniform, distinctive, economical for large or small needs. Write to MATHEWS COMPANY, 827 So. Harvey Ave., Oak Park, Ill. 10-M-54

WRITE FOR free table of contents and price list of the manual — **"SUCCESSFUL SALESMANSHIP ON THE MILK ROUTE."** Help that new routeman to do a complete job quickly. Write to E. R. QUACKENBUSH, 432 Fair St., Berea, Ohio. 10-M-54

CHATTANOOGA FIRM PURCHASED BY HAPPY VALLEY FARMS

The rolling stock, supplies and routes of United Dairies, one of Chattanooga's largest wholesale milk distributing companies, has been purchased by Happy Valley Farms, becoming effective September 27.

The announcement came from Harry Wise, secretary-treasurer of United Dairies, and Sam Turner, manager of Happy Valley Farms. Wise also stated that properties not sold in the Happy Valley Farms deal will be disposed of while the corporation is being liquidated.

The amount of money involved in the transaction between the Happy Valley Farms and United Dairies was not announced. Turner's company will take over the motor vehicle equipment, 10 routes over which they operated wholesale business, the bottles, cases and other equipment. Not included in the deal, however, was a modern milk processing plant United Dairies has been operating at 2341 Rossville Blvd. for 20 years or more. Principal stockholders of the United were Wise and Kenneth B. Kyle, who is president.

Turner announced that Wise, a veteran with 40 years of experience in the milk business, will join the sales staff of Happy Valley Farms as a salesman and supervisor.

Kyle will take over the task of liquidating United Dairies, which owns the modern milk plant and the land upon which it stands. Presumably, that property will be offered for sale after September 27.

Turner stated his company will absorb as much of the United Dairies personnel as is possible.

STUDENT JUDGING CONTEST

(Continued from Page 46)

ing group out there at Ames. He is an excellent coach and there isn't much doubt but what he is shooting for the big one. However, with Ohio primed for another victory and Cornell, already battlewise, gunning for more we are inclined to put Iowa third.

Connecticut is dynamite. The team could very well blow the whole thing wide open and end up on top of the heap. We're committed to the form chart, however, and so we look for Connecticut to capture the number 4 spot.

That brings us down to fifth place. This looks like and "M" deal to us; Michigan, Mississippi, or Maryland. That steady tenacious progress that has marked the College Park contingent during the last few years inclines us to make Maryland our choice for fifth position.

That's far enough. This limb we're climbing out on is getting awfully shaky at this point. Somebody is sure to come along on October 25 and saw it right off.

As usual we look for a smart, stimulating contest. This year, with College Night shaping up as one of the best in history, it will be a contest to remember. The contest will be on Monday. State dinners for the individual teams put on by industry groups from various states will start off the evening on the 26th. The dinners will be followed by an Awards Ball at which the winners will be announced and the awards made.

Well, until about 10 o'clock Tuesday, October 26, nobody can say we're wrong. After that—well, win one, lose one, C'est la vie.

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Statistical Section

Buying And Selling Prices

MILK DEALERS' AVERAGE BUYING PRICES FOR STANDARD GRADE MILK USED FOR CITY DISTRIBUTION AS MILK AND CREAM, UNITED STATES, BY MONTHS, 1931-'53

(Per Hundredweight of 3.5% Milk F.O.B. Local Shipping Points or Country Plants)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
						Dollars							
1931	2.47	2.37	2.33	2.25	2.16	2.15	2.14	2.18	2.16	2.14	2.10	2.00	2.20
1932	1.96	1.88	1.80	1.76	1.71	1.68	1.63	1.64	1.67	1.68	1.64	1.57	1.72
1933	1.55	1.50	1.46	1.47	1.45	1.49	1.57	1.67	1.72	1.77	1.79	1.80	1.60
1934	1.81	1.80	1.79	1.81	1.81	1.82	1.86	1.91	1.97	2.02	2.03	2.04	1.89
1935	2.05	2.07	2.09	2.07	2.07	2.06	2.04	2.03	2.03	2.03	2.03	2.03	2.05
1936	2.04	2.05	2.04	2.03	2.02	2.01	2.06	2.20	2.26	2.28	2.29	2.31	2.13
1937	2.32	2.33	2.33	2.31	2.29	2.28	2.30	2.31	2.32	2.32	2.34	2.35	2.32
1938	2.35	2.32	2.31	2.29	2.26	2.23	2.23	2.22	2.22	2.23	2.23	2.23	2.26
1939	2.23	2.21	2.20	2.15	2.11	2.10	2.10	2.12	2.15	2.19	2.22	2.25	2.17
1940	2.25	2.25	2.25	2.23	2.18	2.18	2.18	2.18	2.18	2.20	2.21	2.24	2.21
1941	2.26	2.26	2.26	2.27	2.27	2.29	2.32	2.40	2.49	2.60	2.66	2.70	2.40
1942	2.73	2.74	2.75	2.75	2.75	2.75	2.75	2.76	2.82	2.85	2.93	2.95	2.79
1943	3.00	3.07	3.09	3.14	3.16	3.18	3.19	3.20	3.22	3.23	3.23	3.23	3.16
1944	3.24	3.24	3.24	3.24	3.24	3.24	3.24	3.24	3.25	3.25	3.26	3.26	3.24
1945	3.26	3.26	3.26	3.25	3.25	3.25	3.25	3.25	3.26	3.26	3.27	3.27	3.26
1946	3.27	3.27	3.29	3.30	3.32	3.47	4.00	4.21	4.43	4.62	4.87	4.96	3.92
1947	4.94	4.74	4.68	4.61	4.46	4.41	4.49	4.60	4.71	4.87	4.97	5.02	4.71
1948	5.09	5.10	5.09	5.07	5.03	5.04	5.16	5.29	5.32	5.30	5.27	5.25	5.17
1949	5.16	5.04	4.89	4.67	4.58	4.56	4.61	4.66	4.71	4.74	4.75	4.75	4.76
1950	4.65	4.63	4.57	4.36	4.31	4.29	4.39	4.52	4.62	4.79	4.84	4.88	4.57
1951	4.99	5.07	5.09	5.05	5.01	4.98	5.05	5.12	5.20	5.30	5.38	5.43	5.14
1952	5.44	5.49	5.47	5.33	5.26	5.22	5.33	5.43	5.54	5.65	5.69	5.63	5.46
1953	5.50	5.40	5.27	5.05	4.92	4.87	4.99*	5.05*	5.15	5.20	5.23	5.18	5.15

*Revised.

Bureau of Agricultural Economics — USDA.

AVERAGE RETAIL PRICES OF MILK DELIVERED TO HOMES IN 25 CITIES[1,2] — YEARLY, 1934-1953

(Cents Per Single Quart)

City	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953
Boston, Mass.	11.3	12.4	12.4	12.5	13.0	13.2	13.2	13.7	15.0	15.7	16.0	16.0	18.2	20.2	22.6	22.2	21.6	23.0	23.9	23.1
Hartford, Conn.	14.0	13.2	13.3	14.0	14.0	14.0	14.0	14.8	16.0	16.0	16.0	16.0	18.1	20.2	22.1	22.7	21.1	23.8	24.5	24.2
New York, N. Y.	12.5	13.0	13.0	12.6	13.1	13.5	14.8	15.7	16.9	17.1	17.0	17.0	19.5	21.1	24.0	23.0	20.9	24.0	24.4	25.0
Philadelphia, Pa.	11.0	11.0	11.2	12.0	12.0	12.0	12.0	12.4	14.0	14.0	14.0	14.0	16.7	19.1	20.8	20.5	20.1	22.5	23.5	23.4
Pittsburgh, Pa.	10.4	11.0	11.4	13.0	13.0	11.7	12.5	13.3	14.0	15.5	15.5	15.5	17.6	19.7	20.8	20.9	20.0	22.1	23.6	24.6
Baltimore, Md.	11.0	12.0	12.1	13.0	13.0	12.8	11.8	13.2	14.0	14.0	14.0	14.0	16.5	19.0	20.7	20.6	20.6	22.7	23.5	23.9
Washington, D. C.	13.0	13.0	13.2	14.0	14.0	14.0	14.0	14.3	15.0	15.0	15.0	15.0	17.2	19.8	20.8	20.2	20.8	22.7	23.7	24.2
Jacksonville, Fla.	14.2	15.0	15.1	16.0	16.0	16.0	16.0	16.3	18.0	18.4	19.0	19.0	20.6	22.3	25.8	25.2	24.7	26.0	26.0	26.9
Cleveland, Ohio	10.5	10.2	11.2	12.0	11.3	10.7	11.2	12.6	14.0	14.9	15.0	15.0	17.1	17.7	20.2	17.8	17.8	20.8	22.0	19.9
Indianapolis, Ind.	9.1	10.0	11.4	12.0	12.0	11.4	11.4	12.6	14.0	14.0	14.0	14.0	15.8	17.9	20.0	18.7	18.9	21.2	22.6	21.8
Chicago, Ill.	9.6	10.7	11.4	12.4	12.3	11.8	13.0	14.0	15.4	16.5	16.5	16.5	18.9	21.0	22.5	21.1	21.3	23.6	25.3	25.0
Detroit, Mich.	10.5	11.8	12.0	12.8	11.8	10.1	11.0	11.9	14.0	14.9	15.0	15.0	16.5	18.3	20.0	18.8	18.5	21.5	22.6	22.1
Milwaukee, Wis.	9.3	10.0	10.8	12.0	12.0	10.9	11.0	12.0	11.8	12.8	13.0	13.0	15.1	16.8	19.4	17.0	16.6	19.2	21.1	21.0
Minneapolis, Minn.	9.2	10.0	10.4	11.0	11.0	11.1	10.5	12.1	12.2	13.0	13.0	13.0	15.1	18.2	19.9	18.1	17.5	19.8	21.2	21.1
Kansas City, Mo.	11.1	11.5	11.8	13.0	13.0	13.0	11.7	12.2	13.1	14.7	15.0	15.0	16.8	18.0	20.1	18.6	18.7	21.2	22.5	21.2
Omaha, Nebr.	9.5	10.0	10.4	11.2	10.8	10.3	11.0	11.3	12.9	13.0	13.0	13.0	15.5	17.5	19.3	18.8	18.7	20.3	21.4	21.1
Louisville, Ky.	11.2	11.8	12.9	13.7	13.3	12.7	12.8	14.1	15.0	15.8	16.0	16.0	18.0	19.8	21.7	20.8	21.2	23.3	24.6	23.8
New Orleans, La.	10.5	11.0	11.6	12.2	12.0	12.2	13.0	14.2	15.5	15.4	15.5	15.5	17.5	20.6	22.4	22.5	23.1	24.1	25.1	26.2
Dallas, Tex.	10.2	11.0	11.0	11.0	11.0	10.8	11.0	11.8	14.0	14.8	15.0	15.0	16.8	19.2	21.5	21.2	20.3	23.0	25.2	24.2
Denver, Colo.	10.2	11.0	11.0	11.2	12.0	11.8	12.0	12.2	13.0	13.0	13.5	13.5	15.5	18.2	19.5	20.0	20.2	22.1	23.2	24.0
Salt Lake City, Utah	10.0	10.1	10.6	11.0	10.6	10.7	10.0	10.3	12.2	13.0	13.0	13.0	14.8	17.1	18.5	19.0	18.8	20.2	21.7	21.4
Seattle, Wash.	10.2	9.8	10.2	11.0	10.4	10.3	11.0	11.9	14.0	14.0	14.0	14.0	16.1	19.3	20.0	18.6	18.4	20.3	22.0	20.9
Portland, Ore.	10.2	10.5	11.1	12.0	11.3	11.0	11.0	12.2	14.0	14.0	14.0	14.0	15.7	17.8	19.6	20.0	19.6	21.9	22.0	22.0
San Francisco, Calif.	12.0	12.1	13.0	13.0	13.0	12.3	12.2	13.6	14.8	15.5	15.5	15.5	17.1	18.7	20.2	19.8	19.1	20.7	22.6	22.6
Los Angeles, Calif.	10.9	11.2	10.9	12.0	11.8	11.5	11.6	12.3	13.5	14.5	14.5	14.5	16.2	18.3	19.9	19.9	19.0	20.7	22.6	22.8
AVERAGE	10.9	11.3	11.7	12.4	12.3	12.0	12.1	13.0	14.3	14.8	14.9	14.9	16.9	19.0	20.9	20.2	19.9	22.0	23.2	23.1

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[1]Selling prices are for that quality of milk commonly sold in specified markets.

[2]The prices listed are the latest reported to the Agricultural Marketing Service up to and including the tenth of the month.

Consumption of Milk and Dairy Products

PER CAPITA MILK PRODUCTION AND CONSUMPTION OF DAIRY PRODUCTS, UNITED STATES, 1931-1953

Year	Milk Cows per 100 People	Milk Production per Capita[1] Pounds	Per Capita Consumption of Dairy Products[2]								
			Fluid Milk and Cream Pounds	Butter Pounds	Cheese[3] Pounds	Evaporated Milk Pounds	Condensed Milk[4] Pounds	Dry Whole Milk Pounds	Nonfat Dry Milk Solids Pounds	Ice Cream Gallons	Total Milk Equivalent[5] Pounds
1931	18.6	831	335	18.0	4.5	11.4	1.9	.1	1.4	1.8	826
1932	19.3	832	339	18.2	4.4	12.2	1.6	.1	1.4	1.3	820
1933	20.0	834	337	17.9	4.5	12.2	1.4	.1	1.4	1.3	803
1934	19.9	804	322	18.3	4.8	13.3	1.4	.1	1.5	1.5	803
1935	19.0	795	326	17.3	5.2	14.5	1.5	.1	1.6	1.7	789
1936	18.5	800	330	16.6	5.4	13.9	1.7	.1	1.7	2.0	782
1937	18.1	791	331	16.5	5.5	14.8	1.7	.1	1.9	2.2	786
1938	17.9	815	329	16.4	5.8	15.4	1.6	.1	2.1	2.2	785
1939	17.8	816	332	17.2	5.8	16.1	1.5	.1	2.1	2.3	813
1940	17.9	828	331	16.7	5.9	17.3	1.8	.1	2.2	2.4	807
1941	18.2	863	334	15.8	5.8	16.6	1.7	.2	2.4	2.9	791
1942	18.6	879	354	15.7	6.3	16.3	1.9	.2	2.5	3.3	821
1943	18.6	856	371	11.7	4.9	16.9	1.7	.4	2.1	2.8	740
1944	18.5	846	381	11.8	4.8	13.6	1.9	.3	1.5	3.1	752
1945	17.9	856	399	10.8	6.6	16.1	1.9	.4	1.9	3.4	777
1946	17.0	832	389	10.4	6.6	16.8	1.5	.5	3.2	5.0	775
1947	16.2	810	369	11.1	6.8	17.9	2.1	.4	2.9	4.3	758
1948	15.2	768	355	9.9	6.8	18.1	1.7	.3	3.3	3.9	714
1949	14.8	778	352	10.4	7.2	17.6	1.9	.2	3.2	3.7	724
1950	14.5	769	349	10.6	7.6	17.9	1.9	.3	3.6	3.6	731
1951	14.0	744	352	9.5	7.1	16.0	2.0	.3	4.2	3.6	707
1952	13.8	734	352	8.6	7.5	15.5	1.9	.4	4.6	3.7	694
1953	13.9	759	352	8.6	7.0	15.3	1.9	.2	4.2	3.5	682

[1] Farm milk production in relation to census July 1 population including armed forces overseas.
[2] Revised series. Data for 1941-53 are civilian consumption only.
[3] All cheese except full skim, cottage, pot and bakers'.
[4] Case and bulk
[5] Less than .05
[6] Not available.
[7] Whole milk equivalent, fat solids basis.

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ANNUAL CONSUMPTION OF FLUID MILK AND CREAM: NONFARM, FARM, TOTAL AND CIVILIAN, UNITED STATES, 1924-52

Year	Nonfarm		Farm		Total		
	Quantity Consumed Bil. Lb.	Consumption Per Capita Pounds	Quantity Consumed Bil. Lb.	Consumption Per Capita Pounds	Quantity Consumed Bil. Lb.	Quantity Consumed Civilian Bil. Lb.	Consumption Per Capita Civilian Pounds
1924	25.6	304	13.3	421	38.9	38.9	336
1925	26.3	306	13.3	421	39.6	39.6	337
1926	27.0	308	13.2	422	40.2	40.2	338
1927	27.6	308	13.0	419	40.6	40.6	336
1928	28.3	310	12.9	416	41.2	41.2	337
1929	29.3	317	12.7	410	42.0	42.0	340
1930	29.2	311	12.9	416	42.1	42.1	337
1931	28.6	303	13.5	430	42.1	42.1	335
1932	28.8	305	14.1	439	42.9	42.9	339
1933	28.5	302	14.4	439	42.9	42.9	337
1934	26.9	282	14.4	440	41.3	41.3	322
1935	27.9	289	14.1	434	42.0	42.0	326
1936	29.0	297	13.8	430	42.8	42.8	330
1937	29.5	298	13.7	434	43.2	43.2	331
1938	29.6	295	13.7	436	43.3	43.3	329
1939	30.2	298	13.9	446	44.1	44.1	332
1940	30.6	297	13.7	443	44.3	44.3	331
1941	31.6	302	13.5	444	45.1	44.7	334
1942	34.8	326	13.3	459	48.1	47.2	354
1943	37.5	343	12.7	474	50.2	48.5	371
1944	38.4	353	12.9	500	51.3	49.6	381
1945	40.7	373	12.8	492	53.5	52.2	399
1946	42.2	367	13.1	485	55.3	54.6	389
1947	41.1	347	12.6	463	53.7	53.3	369
1948	40.6	333	12.1	460	52.7	52.3	355
1949	41.2	331	11.8	452	53.0	52.6	352
1950	42.2	329	11.5	456	53.7	53.2	349
1951	43.3	331	11.5	467	54.8	53.9	352
1952	44.2	333	11.4	456	55.6	54.7	352
1953	45.3	331	.....	.....	.....	.....	350

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IMPORTANCE OF SPECIFIC BEVERAGE QUALITIES BY DRINKING OF PLAIN MILK

Question: Assuming now that you like the taste, which of these is important to you in a beverage — vitamins, minerals, proteins, calcium, easily digestible, or all around value?

	Total	Drinkers	Non-Drinkers
	Per Cent		
Vitamins	54.0	56.1	45.4
Minerals	28.3	30.3	20.1
Proteins	27.4	30.1	16.1
Calcium	39.9	45.1	18.4
Easily digestible	25.6	26.3	22.6
All around value	55.1	58.3	42.2
None of these	14.8	12.2	25.8
Total Mentions	245.1	258.4	190.6

REASONS FOR CHOOSING BEVERAGES BY SEX

Question: Which of these reasons do you think makes you choose a particular drink? That is, in choosing any beverage at all, do you think taste, health, price, not fattening, or being easily available makes you choose a particular drink?

	Total	Males	Females
	Per Cent		
Health	38.7	34.8	42.3
Taste	75.1	77.3	73.0
Easily available	9.9	10.9	9.0
Price	5.8	5.0	6.6
Not fattening	3.4	1.1	5.5
None of these	1.9	1.7	2.1
Don't know	2.8	2.7	2.9
Total Mentions	137.6	133.5	141.4

CONSUMPTION INFORMATION

WHAT PEOPLE FEEL IS THEIR DAILY REQUIREMENT OF PLAIN MILK

Question: About how much milk do you think you ought to drink each day at this time of year?

	Total Per Cent
One glass	11.2
Two glasses	31.5
THREE GLASSES	8.5
Four glasses	31.0
Five glasses	0.4
Six or more glasses	3.8
None	5.6
Don't know	8.0
Total	100.0

WHERE PLAIN MILK IS CONSUMED ON AN AVERAGE DAY BY SEX

Question: Was the milk you drank yesterday at home, at someone else's home or away from any home?

	Total	Males	Females
		Per Cent	
At home	82.7	77.2	88.4
Away from home	10.2	13.0	7.3
At someone else's home	1.0	1.1	1.0
At home and away from home	5.6	8.1	2.9
At home and at someone else's home	0.5	0.6	0.4
Total	100.0	100.0	100.0

HOW NEW RECIPES ARE OBTAINED

Question: Would you look at this card and tell me which of the following ways you get new recipes?

	Total Per Cent
Cookbooks	76.6
Magazines	64.7
On or in food packages	50.9
Friends or relatives	52.0
Radio and television	32.4
Newspapers	40.4
Other ways	2.8
Total Mentions	319.8

Based on people who use recipes. Asked only of respondents who reported doing the cooking and shopping for the family.

HOW BUTTER AND OLEOMARGARINE ARE USED ON AN AVERAGE DAY

Question: How much butter (oleomargarine) altogether was used in the home yesterday? How much of this was used as spreads on bread, crackers, sandwiches, etc., and how much was used in cooking, baking, spreading on hot vegetables, etc?

	Butter	Oleomargarine
	Per Cent	
Used as spreads	68.2	47.2
Used in cooking, baking	31.8	52.8
Total used	100.0	100.0

Asked only of respondents who reported doing the cooking and shopping for the family.

DRINKING OF PLAIN MILK BY AGE

Question: Which of these that you did not drink yesterday do you sometimes drink?

	Total	15-24 Years	25-34 Years	35-44 Years	45-54 Years	55 Years and Over
			Per Cent			
Drink	78.5	88.9	82.9	77.8	74.9	70.6
Do not drink	21.5	11.1	17.1	22.2	25.1	29.4
Total	100.0	100.0	100.0	100.0	100.0	100.0

Figures include people who drink on an average day and also those who sometimes drink plain milk.

DAILY MILK DRINKING BY AGE

Question: About how much milk would you say you've drunk in the past week (7 days)?

	Total	15-24 Years	25-34 Years	35-44 Years	45-54 Years	55 Years and Over
			Per Cent			
Drink Daily						
One glass or less	57.9	41.9	54.9	66.1	63.3	63.7
Two glasses	21.8	22.1	24.5	19.6	20.7	22.0
Three glasses or more	20.3	36.0	20.6	14.3	16.0	14.3
Total	100.0	100.0	100.0	100.0	100.0	100.0

Based on people who drink milk.

WHETHER PEOPLE DRINK THEIR DAILY REQUIREMENT OF PLAIN MILK

Question: About how much milk would you say you've drunk in the past week (7 days? About how much milk do you think you ought to drink each day at this time of year?

	Ought to Drink One Glass	Two Glasses	Three Glasses	Four Glasses	Five Glasses	Six Glasses or More
			Per Cent			
Actually drink	59.0	31.5	19.6	22.6	8.0	27.1
Do not actually drink	41.0	68.5	80.4	77.4	92.0	72.9
Total	100.0	100.0	100.0	100.0	100.0	100.0

BEVERAGES CONSUMED ON AN AVERAGE DAY BY FAMILY INCOME

Question: Would you look at this card and tell me which of these you drank at breakfast or before breakfast yesterday? (Interviewer asked for each time period.)

	Total	Under $2,000 a Year	$2,000-2,999	$3,000-4,999	$5,000-7,499	$7,500 and Over
			Per Cent			
Drank at least once on an average day:						
Plain milk	50.7	41.2	52.8	49.5	57.7	63.3
Flavored milk	4.3	3.8	5.8	3.5	5.6	2.0
Milk drinks	1.4	0.6	0.8	1.7	2.1	0.4
Beer, ale	8.8	5.2	6.8	11.2	12.6	8.6
Coffee	80.6	74.3	80.6	81.2	85.4	84.6
Tea	31.6	35.6	30.6	33.8	30.2	30.8
Soft drinks	27.5	23.3	31.1	31.1	26.2	26.4
Fruit juices	41.7	23.1	33.6	43.6	51.9	69.7
None of these	1.6	4.2	0.5	0.8	0.8	0.7
Total Mentions	248.2	211.3	242.6	256.4	272.5	286.5

BEVERAGES CONSIDERED BEST FOR SPECIFIC QUALITIES

Question: Which of these drinks do you feel is good for ——————?

	Vitamins	Minerals	Proteins	Calcium	Easily Digestible	All Around Value
			Per Cent			
Plain milk	51.7	61.4	78.3	85.7	49.8	68.0
Flavored milk	15.0	18.1	21.9	24.8	10.7	22.4
Milk drinks	13.9	17.3	22.4	26.2	11.7	22.1
Beer, ale	3.4	3.7	3.3	0.8	9.7	7.7
Coffee	1.4	0.5	1.3	0.7	14.3	11.3
Tea	1.0	1.2	1.1	0.4	22.6	8.4
Soft drinks	5.3	2.5	1.8	0.4	16.6	9.2
Fruit juices	73.5	50.6	18.4	9.5	25.3	43.9
Don't know	2.0	5.5	5.0	3.1	5.8	1.5
None of these	0.2	0.7	0.3	0.2	0.5	0.2
Total Mentions	167.4	161.5	153.8	151.8	167.0	194.7

All statistics on this page are from the American Dairy Association's second consumer survey conducted by Alfred Politz.

CONSUMPTION INFORMATION

ICE CREAM CONSUMED ON AN AVERAGE DAY BY AGE

Question: Did you eat any ice cream at all yesterday?

	Total	15-24 Years	25-34 Years	35-44 Years	45-54 Years	55 Years and Over
			Per Cent			
Ate ice cream	29.4	39.9	31.1	28.0	28.3	22.5
Did not eat	70.6	60.1	68.9	72.0	71.7	77.5
Total	100.0	100.0	100.0	100.0	100.0	100.0

OCCASIONS WHEN ICE CREAM WAS CONSUMED ON AN AVERAGE DAY BY ECONOMIC STATUS

Question: Did you eat ice cream at breakfast or before breakfast yesterday? (Interviewer asked for each time period.)

	Total	Upper	Middle	Lower
		Per Cent		
At or before breakfast	0.3	—	0.2	0.5
Between breakfast and lunch	2.7	2.8	2.8	2.5
At lunch	22.7	28.9	20.9	22.7
Afternoon	26.9	21.4	26.5	30.7
At supper	20.2	33.0	20.4	13.7
During evening	37.2	37.7	37.0	36.5
Right before going to sleep	2.5	3.8	1.9	3.0
Total Mentions	112.5	127.6	109.7	109.6

HOW ICE CREAM TASTES BEST BY FREQUENCY OF EATING ICE CREAM

Question: As far as the taste is concerned, do you like the taste of ice cream better when frozen hard, medium hard or soft?

	Total	Once a Day to Three Times a Week	Once a Week	Once in Two Weeks or Less Often
Frozen hard	22.4	25.3	20.5	19.7
Medium hard	62.2	61.9	64.7	59.8
Soft	13.2	11.7	13.1	15.7
Don't know	2.2	1.1	1.7	4.8
Total	100.0	100.0	100.0	100.0

HOW NONFAT DRY MILK IS USED BY ECONOMIC STATUS

Question: What is the main purpose for which you use (used) dry powdered milk?

	Total	Upper	Middle	Lower
		Per Cent		
Cooking	45.7	39.5	47.2	45.7
Drinking	29.1	13.8	28.6	34.6
Baking	12.0	5.9	11.2	14.3
Use only in emergencies	4.8	6.6	4.8	4.3
Coffee, Tea	4.5	12.5	3.3	3.9
Puddings and desserts	4.3	7.9	3.9	3.9
For pets	3.2	8.6	2.9	2.0
Cereal	1.2	0.7	1.6	0.9
Other purposes	10.4	14.5	11.3	7.8
Don't know, no special purpose	1.7	4.6	1.3	1.5
Total Mentions	116.9	114.6	116.1	118.9

Asked only of respondents who reported doing the cooking and shopping for the family.

The four tables above are from the American Dairy Association Second Consumer Survey conducted by Alfred Politz.

POPULATION

PROJECTIONS OF TOTAL POPULATION OF UNITED STATES BY AGE GROUPS

	July 1, 1950	July 1, 1955	July 1, 1965	July 1, 1975
Under 5	16,312,000	17,779,000	16,415,000	18,041,000
5-19	35,124,000	41,677,000	53,390,000	52,772,000
20-34	35,547,000	34,855,000	35,732,000	49,770,000
35-49	30,684,000	32,792,000	35,447,000	33,707,000
50-64	21,646,000	23,388,000	27,826,000	31,636,000
65 over	12,364,000	13,973,000	17,336,000	20,689,000

Bureau of Census figures. The assumption is made as to fertility: 1950-1953 level declines from 1953 to about the 1940 level by 1975.

QUALITY

COMPARISON OF MILK QUALITY TESTS ON RAW MILK STORED AT 42°F.

Age of Milk in Days	Standard Plate count at 95°F. (Mesophiles)	Standard Plate count at 42°F. (Psycrophiles)	Microscopic	Methylene Blue
2	63,000	1,800*	216,000*	not reduced in 6 hrs.
2	19,000	500	72,000	not reduced in 6 hrs.
4	35,000	20,000	600,000	not reduced in 6 hrs.
4	15,000	1,000	3,600,000	not reduced in 6 hrs.
5	7,800,000	18,600,000	5,100,000	not reduced in 6 hrs.
5	62,000	130,000	48,000	not reduced in 6 hrs.
6	11,600,000	21,000,000	16,000,000	not reduced in 6 hrs.
6	5,800,000	8,000,000	5,000,000	reduced in 6 hrs.
6	200,000	4,900,000	3,000,000	not reduced in 6 hrs.

*Bacteria per ml.

PERSONAL INCOME

PERSONAL INCOME IN THE UNITED STATES

	Unit	1952	1951	1950	1949	1948	1947	1946
Personal income	Bil. Dols.	268.3	254.1	226.3	205.9	209.5	191.0	177.7
Wage and salary receipts	do	177.9	166:5	142.7	131.2	132.1	119.9	109.2
Other labor income	do	4.5	4.2	3.8	3.1	2.8	2.4	1.9
Proprietors' and rental income	do	52.5	50.6	45.2	42.1	47.3	42.4	42.0
Dividends	do	9.1	9.0	9.0	7.5	7.3	6.6	5.8
Personal interest income	do	12.0	11.3	10.5	9.6	8.8	7.9	7.4
Transfer payments	do	12.7	12.4	15.1	12.4	11.3	11.8	11.4
Less: Personal tax and nontax payments	do	34.0	29.1	20.8	18.6	21.1	21.5	18.8
Equals: Disposable personal income	do	234.3	225.0	205.5	187.2	188.4	169.5	158.9
Less: Personal-consumption expenditures	do	216.3	208.0	194.3	180.6	177.9	165.6	146.9
Equals: Personal saving	do	18.0	17.0	11.2	6.7	10.5	3.9	12.0

PRICE INDEXES

WHOLESALE PRICE INDEXES, BUREAU OF LABOR STATISTICS

New Series*	Unit	1952	1951	1950	1949	1948	1947
All commodities	1947-49 = 100	111.6	114.8	103.1	99.2	104.4	96.4
Farm products	do	107.0	113.4	97.5	92.8	107.3	100.0
Processed foods	do	108.8	111.4	99.8	95.7	106.1	98.2
Textile products and apparel	do	99.8	110.6	99.2	95.5	104.4	100.1
Hides, skins, and leather products	do	97.2	120.3	104.6	96.9	102.1	101.0
Fuel, power, and lighting materials	do	106.6	106.7	103.0	101.9	107.1	90.9
Chemicals and allied products	do	104.5	110.0	96.3	94.8	103.8	101.4
Rubber and products	do	134.0	148.0	120.5	98.9	102.1	99.0
Lumber and wood products	do	120.3	123.9	113.9	99.2	107.2	93.7
Pulp, paper, and allied products	do	116.5	119.6	100.9	98.5	102.9	98.6
Metals and metal products	do	123.0	122.8	110.3	104.8	103.9	91.3
Machinery and motive products	do	121.5	119.0	108.6	106.6	100.9	92.5
Furniture and other household durables	do	112.0	114.1	105.3	103.1	101.4	95.6
Nonmetallic minerals — structural	do	113.6	113.6	106.9	104.4	101.7	93.9
Tobacco manufactures and bottled beverages	do	110.6	108.1	102.4	101.6	100.4	98.0
Miscellaneous	do	108.3	104.9	96.6	96.1	103.1	100.8

*Series L 15a-15s are new series replacing L 15-25. Comparable data for earlier years shown in Table 2. Source: Bureau of Labor Statistics, *Wholesale Prices* and *Monthly Labor Review*.

PRODUCTION

MILK COWS AND MILK PRODUCTION ON FARMS, UNITED STATES, 1925-39 AVERAGE AND 1940-53

Year	Number of Milk Cows on Farms[1] Thousands	Production per Milk Cow[2] Milk (Pounds)	Production per Milk Cow[2] Milkfat (Pounds)	Total Milk Production on Farms[2] Quantity Million Lbs.	Total Milk Production on Farms[2] Amount per Capita Pounds
1925-39 average	22,952	4,379	172	100,369	808
1940	23,671	4,622	184	109,412	828
1941	24,288	4,738	188	115,088	863
1942	25,027	4,736	188	118,533	879
1943	25,451	4,598	183	117,017	856
1944	25,597	4,572	182	117,023	846
1945	25,033	4,787	190	119,828	856
1946	24,089	4,886	194	117,697	832
1947	23,329	5,007	199	116,814	810
1948	22,336	5,044	200	112,671	768
1949	22,024	5,272	209	116,103	778
1950	21,944	5,314	210	116,602	769
1951	21,616	5,313	210	114,841	744
1952[3]	21,615	5,329	209	115,197	734
1953[4]	22,256	5,447	214	121,219	759

[1] Average number on farms during year excluding heifers not yet fresh.
[2] Excludes milk sucked by calves and milk produced by cows not on farms.
[3] Revised.
[4] Preliminary.

Bureau of Agricultural Economics — USDA

Membership Milk Industry Foundation

MILK INDUSTRY FOUNDATION MEMBERSHIP STATISTICS

Routes	Per Cent Members
1-5	9.0%
6-10	22.0%
11-20	28.0%
21-30	12.0%
31-40	8.5%
41-50	6.0%
51-75	5.5%
76-100	3.0%
101-500	5.5%
Over 500	.5%
	100.0%

OPERATING COSTS

INCOME AND OPERATING STATEMENT, 1953

		320 Dealers	320 Dealers Per Cent
1.	Net sales	$389,291,045.63	100.0000
2.	Cost of sales	221,960,991.83	57.0167
3.	Gross profit of sales	167,330,053.80	42.9833
	OPERATING EXPENSES		
4.	Salaries and wages	85,076,946.06	21.8543
5.	Milk bottles, jars and containers	16,009,959.48	4.1126
6.	Cans and cases	919,873.23	.2363
7.	Fuel, coal, electric and water	4,770,870.44	1.2255
8.	Feed, gas, oil, grease and tires	5,101,978.91	1.3106
9.	Manufacturing, cleaning supplies and laundry	4,898,812.87	1.2584
10.	Office supplies, telephone and telegraph	1,720,557.38	.4420
11.	Repairs—building	1,992,248.90	.5118
12.	Repairs—machinery and equipment	2,339,588.00	.6010
13.	Delivery equipment repairs	2,274,735.33	.5843
14.	Furniture and fixture repairs	42,582.22	.0109
15.	Taxes	2,716,438.89	.6978
16.	Insurance	3,086,819.68	.7929
17.	Licenses and permits	291,848.57	.0750
18.	Depreciations—buildings	1,179,097.38	.3029
19.	Depreciations—machinery and equipment	3,974,303.17	1.0209
20.	Depreciations—delivery equipment	3,104,941.45	.7976
21.	Depreciations—furniture—fixtures	158,268.04	.0407
22.	Legal and accounting fees	466,524.42	.1198
23.	Donations	258,933.86	.0665
24.	Advertising	4,984,135.36	1.2803
25.	Bad debts	576,172.62	.1480
26.	Rent	1,450,813.88	.3727
27.	Freight and cartage	2,594,210.83	.6664
28.	Dues and subscriptions	265,201.72	.0681
29.	Laboratory testing	126,820.18	.0326
30.	Selling expense	743,992.22	.1911
31.	Delivery expense	1,524,850.04	.3917
32.	Horse and wagon expense		
33.	Refrigeration expense	155,419.86	.0399
34.	Undistributed expense	415,636.26	.1068
35.	Miscellaneous expense	1,712,509.93	.4399
36.	Credits—pur. discounts	311,741.31	.0799
37.	Credits—hauling charges	716,967.44	.1842
38.	Credits—R. S. allowance	2,321,781.35	.5964
39.	Credits—other	739,071.33	.1899
40.	Net operating expenses	150,846,096.75	38.7489
41.	NET PROFIT FROM OPERATIONS	16,483,957.05	4.2344
42.	Total other income	434,360.15	.1115
43.	TOTAL GROSS INCOME	16,918,317.20	4.3459
44.	Other expenses: Interest paid	659,347.26	.1694
45.	Other expenses: Miscellaneous	312,464.14	.0802
46.	TOTAL OTHER EXPENSES	971,811.40	.2496
47.	NET PROFIT BEFORE INCOME TAX	15,946,505.80	4.0963
48.	Federal and State Income Tax	7,392,821.13	1.8991
49.	NET PROFIT AFTER INCOME TAX	8,553,684.67	2.1972

Pennsylvania Milk Commission.

AVERAGE OPERATING RESULTS — FLUID MILK DEALERS
(In Terms of Net Trade Sales)

Number of Units	1941 141	1944 170	1947 244	1949 254	1952 342
Net Trade Sales	$1.0000	$1.0000	$1.0000	$1.0000	$1.0000
Material Costs*	.5682	.6114	.6562	.6193	.6248
Administrative Salaries	.0074	.0098	.0071	.0087	.0081
All Other Salaries and Wages	.2205	.1944	.1862	.1989	.1907
Taxes and Licenses	.0279	.0398	.0189	.0214	.0234
Insurance	.0053	.0055	.0049	.0053	.0048
Depreciation	.0234	.0143	0.109	.0140	.0140
Advertising	.0121	.0070	.0077	.0078	.0084
Containers	.0376	.0322	.0305	.0400	.0505
All Plant Delivery and Office Expense	.0409	.0529	.0489	.0527	.0492
All Other Expense	.0355	.0129	0.110	.0113	.0117
Total Operating Expense	.9788	.9802	.9823	.9794	.9856
Net Operating Profit	.0212	.0198	.0177	.0206	.0144

*Includes purchased transportation.

This table answers quite clearly the perennial question, "Why is the price of milk so high?" Although producer prices have declined 2 cents on the dollar, increases in other items have more than offset the lower raw material cost.

Milk Industry Foundation.

A list of the stations which will carry ADA's TV show "Disneyland"

State and City	Station	Channel No.	Local Telecast Time
ALABAMA			
Birmingham	WABT	13	Wed. 7:00-8:00 PM
Mobile	WALA-TV	10	Wed. 7:30-8:30 PM
Montgomery	WCOV-TV	20	Sun. 4:30-5:30 PM
ARIZONA			
Phoenix	KOOL-TV	10	Wed. 8:30- 9:30 PM MT
Tucson	KVOA-TV	4	Wed. 9:00-10:00 PM
ARKANSAS			
Little Rock	KATV	7	Ordered but not cleared.
Pine Bluff			
CALIFORNIA			
Bakersfield	KBAK-TV	29	Wed. 7:30-8:30 PM PCT
Fresno	KJEO-TV	47	Wed. 7:30-8:30 PM PCT
Los Angeles	KABC-TV	7	Wed. 7:30-8:30 PM PCT
Sacramento	KCC-TV	40	Sun. 4:30-5:30 PM
San Diego	KFMB-TV	8	Thurs. 8:00-9:00 PM PCT
San Francisco	KGO-TV	7	Wed. 7:30-8:30 PM PCT
COLORADO			
Denver	KBTV	9	Wed. 8:30-9:30 PM MT
CONNECTICUT			
Hartford-New Britain	WKNB-TV	30	Ordered but not cleared.
New Haven	WNHC-TV	8	Ordered but not cleared.
DISTRICT OF COLUMBIA			
Washington	WMAL-TV	7	Wed. 7:30-8:30 PM ET
FLORIDA			
Ft. Lauderdale	WITV	17	Ordered but not cleared.
Jacksonville	WMBR-TV	36	Tues. 8:00-9:00 PM ET
Orlando	WDBO-TV	6	Wed. 6:30-7:30 PM ET
St. Petersburg	WSUN-TV	38	Wed: 7:30-8:30 PM ET
West Palm Beach	WJNO-TV	5	Wed. 7:30-8:30 PM ET
GEORGIA			
Atlanta	WLW-A	11	Wed: 7:30-8:30 PM ET
Augusta	WRDW-TV	12	Wed: 7:30-8:30 PM ET
Columbus	WDAK-TV	28	Wed. 8:00-9:00 PM ET
Macon	WMAZ-TV	13	Sat. 7:00-:800 PM ET
Savannah	WTOC-TV	11	Thurs. 8:00-9:00 PM ET
IDAHO			
Boise	KIDO-TV	7	Wed: 9:00-10:00 PM MT
ILLINOIS			
Chicago	WBKB	7	Wed. 6:30-7:30 PM CT
Danville	WDAN-TV	24	Wed. 6:30-7:30 PM CT
Peoria	WTVH-TV	19	Wed. 6:30-7:30 PM CT
Quincy	WGEM-TV	10	Wed. 7:00-8:00 PM
Rock Island	WHBF-TV	4	Tues. 7:00-8:30 PM CT
Rockford	WREX-TV	13	Wed. 6:30-7:30 PM CT
INDIANA			
Evansville	WFIE-TV	62	Wed. 6:30-7:30 PM CT
Ft. Wayne	WKJG-TV	33	Sat. 5:00-6:00 PM
Indianapolis	WISH-TV	8	Wed. 7:00-8:00 PM CT
IOWA			
Ames-Des Moines	WOI-TV	5	Wed. 8:00-9:00 PM CT
Cedar Rapids	KCRI-TV	9	Wed. 6:30-7:30 PM CT
Sioux City	KVTV	9	Tues. 9:00-10:00 PM
KANSAS			
Topeka	WIBW-TV	13	Ordered but not cleared.
Wichita	KEDD	16	Ordered but not cleared.
KENTUCKY			
Louisville	WAVE-TV	3	Ordered but not cleared.
LOUISIANA			
Baton Rouge	WAFB-TV	28	Tues. 7:00-8:00 PM CT
New Orleans	WDSU-TV	6	Sat. 4:00-5:00 PM
Shreveport	KSLA-TV	12	Sun. 4:00-5:00 PM
MAINE			
Poland	WMTW-TV	8	Wed. 7:30-8:30 PM ET
MARYLAND			
Baltimore	WAAM	13	Wed. 7:30-8:30 PM ET
MASSACHUSETTS			
Boston	WNAC-TV	7	Ordered but not cleared.
Springfield	WWLP-TV	61	Sun. 6:00-7:00 PM ET
Worcester	WWOR-TV	14	Will be ordered if Boston unavailable
MICHIGAN			
Detroit	WXYZ-TV	7	Wed. 7:30-8:30 PM ET
Grand Rapids	WOOD-TV	8	Ordered but not cleared.
Lansing	WJIM-TV	6	Sat. 5:00-6:00 PM
MINNESOTA			
Austin	KMMT	6	Wed. 6:30-7:30 PM CT
Duluth	KDAL-TV	3	Sun. 4:00-5:00 PM CT
Minneapolis-St. Paul	WTCN-TV	11	Wed. 6:30-7:30 PM CT
MISSISSIPPI			
Jackson	WSLI-TV	12	Wed. 6:30-7:30 PM CT
MISSOURI			
Kansas City	KCMO-TV	5	Wed. 6:30-7:30 PM CT
St. Louis	KWK-TV	4	Sun. 5:30-6:30 PM
Springfield	KYTV	3	Wed. 7:30-8:30 PM CT
MONTANA			
Butte	KOPR-TV	4	Wed. 8:30-9:30 PM MT
NEBRASKA			
Lincoln	KOLN	10	Wed. 6:30-7:30 PM CT
Omaha	KMTV	3	Sun. 5:00-6:00 PM CT
NEVADA			
Reno	KZTV	8	Wed. 8:00-9:00 PM PCT
NEW HAMPSHIRE			
Manchester	WMUR-TV	9	Wed. 7:30-8:30 PM ET
NEW MEXICO			
Albuquerque	KOAT-TV	7	Wed. 8:30-9:30 PM MT
NEW YORK			
Albany-Troy	WROW-TV	41	Wed. 7:30-8:30 PM ET
Schenectady			
Buffalo	WGR-TV	2	Sat. 6:00-7:00 PM ET
New York	WABC-TV	7	Wed. 7:30-8:30 PM ET
Rochester	WVET-TV	10	Thurs: 6:30-7:30 PM ET
Syracuse	WSYR-TV	3	Sat. 6:00-7:00 PM ET
NORTH CAROLINA			
Charlotte	WAYS-TV	36	Ordered but not cleared.
Durham	WTIK-TV	11	Wed. 7:30-8:30 PM ET
Greenville	WNCT	9	Sun. 5:00-6:00 PM ET
OHIO			
Cincinnati	WCPO-TV	9	Wed. 7:30-8:30 PM ET
Cleveland	WXEL	8	Wed. 7:30-8:30 PM ET
Columbus	WTVN	6	Wed. 7:30-8:30 PM ET
Dayton	WLW-D	2	Sat. 5:30-6:30 PM
Toledo	WSPD-TV	13	Ordered but not cleared.
Youngstown	WKBN-TV	27	Sat. 5:30-6:30 PM
OKLAHOMA			
Oklahoma City	WKY-TV	4	Sun. 3:00-4:00 PM
Tulsa	KOTV	6	Sun. 3:00-4:00 PM
OREGON			
Portland	KOIN-TV	6	Sun. 5:00-6:00 PM PCT
PENNSYLVANIA			
Altoona	WFBG-TV	10	Wed. 7:30-8:30 PM ET
Erie	WICU	12	Sat. 6:00-7:00 PM ET
Harrisburg	WT-PA-TV	71	Wed. 7:30-8:30 PM ET
Philadelphia	WFIL-TV	6	Wed. 7:30-8:30 PM ET
Pittsburgh	WENS	16	Wed. 8:00-9:00 PM
Wilkes-Barre	WILK-TV	34	Wed. 7:30-8:30 PM ET
York	WSBA-TV	43	Wed. 7:30-8:30 PM ET
RHODE ISLAND			
Providence	WJAR-TV	10	Ordered but not cleared.
SOUTH CAROLINA			
Charleston	WCSC-TV	5	Sun. 6:30-7:30 PM ET
Columbia	WCOS-TV	25	Wed. 7:30-8:30 PM ET
Greenville	WGVL-TV	23	Wed. 7:30-8:30 PM ET
TENNESSEE			
Chattanooga	WDEF-TV	12	Sun. 6:00-7:00 PM ET
Knoxville	WATE-TV	6	Sun. 6:00-7:00 PM ET
Memphis	WHBQ-TV	13	Tues: 7:00-8:00 PM CT
Nashville	WSIX-TV	8	Wed. 6:30-7:30 PM CT
TEXAS			
Amarillo	KFDA-TV	10	Tues: 7:00-8:00 PM
Corpus Christi	KVDO-TV	22	Tues. 7:00-8:00 PM CT
El Paso	KROD-TV	4	Wed. 7:00-8:00 PM
Ft. Worth	WBAP-TV	5	Wed. 6:30-7:30 PM CT
Galveston	KGUL-TV	11	Ordered but not cleared.
Lubbock	KCBD-TV	11	Wed. 8:00-9:00 PM CT
San Antonio	KGBS	5	Sat. 5:30-6:30 PM CT
UTAH			
Salt Lake City	KSL-TV	5	Wed. 8:30-9:30 PM MT
VIRGINIA			
Lynchburg	WLVA-TV	13	Sat. 6:00-7:00 PM ET
Norfolk	WTAR-TV	3	Sat. 5:00-6:00 PM
Richmond	WTVR	6	Sun. 3:00-4:00 PM
Roanoke	WSLS-TV	10	Sun. 5:00-6:00 PM ET
WASHINGTON			
Seattle	KING-TV	5	Wed. 7:30-8:30 PM PCT
Spokane	KXLY-TV	4	Sun. 4:30-5:30 PM PCT
WEST VIRGINIA			
Charleston	WCSH-TV	8	Sat. 7:00-8:00 PM
Parkersburg	WTAP-TV	15	Wed. 7:30-8:30 PM ET
Wheeling	WTRF-TV	7	Sun. 6:00-7:00 PM ET
WISCONSIN			
Madison	WMTV	33	Wed. 6:30-7:30 PM CT
Milwaukee	WTMJ-TV	4	Sun. 2:00-3:00 PM

Correct as of August 31, 1954.

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F-10
J-14
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H-3
B-11
L-2
B-7
F-5
120
113
Stage 1
403
K-6
117
L-15
310
K-14
L-6
W-30
K-4
14
W-31
519
109
C-6
W-34
129
503
H-2
B-10
M-2
W-16
L-16
123
D-2
B-8
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W-18
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W-14
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F-4
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W-9
J-12
M-10
105
504
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W-28
W-3
G-12
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Exhibitors And Booths At Exposition

Booth No.	
F-10	A. P. V. Co., Inc.
J-14	A-1 Bottling Machinery Co.
510	Ace Cabinet Corp.
D-1	The Akron Equipment Co.
126	Allegheny Ludlum Steel Corp.
M-11	The Louis Allis Co.
A-4	Alloy Products Corp.
W-22	Alpha Aromatics, Inc.
W-10	Aluminum Co. of America
520	Ambrosia Chocolate Co.
312	Amcoin Corp.
H-3*	American Breddo Corp.
B-11	American Can Co.
L-2	American Food Laboratories, Inc.
B-7	American Maize-Products Co.
F-5	American-Marsh Pumps, Inc.
120	The American Paper Goods Co.
113	American Seal-Kap Corp.
Stage 1*	Anderson Bros. Mfg. Co.
403	Anheuser-Busch, Inc.
K-6	Animated Display Creators, Inc.
117	Armstrong Cork Co.
L-15	Atlantic Stamping Co.
310	Authorized Cabinet Co.
K-14	Bailey & Perkins, Freeze-ite Div.
L-6	Baker Box, Div. of Connohio, Inc.
W-30	Walter Baker Chocolate & Cocoa Div. General Foods Corp.
K-4*	Balch Flavor Co.
14	Bally Case & Cooler Co.
W-31	Baltimore Aircoil Co., Inc.
519	Barker Equipment Co.
109	Barry & Baily Co.
C-6	Basca Manufacturing Co., Div. of Huyler's
W-34	The Bastian-Blessing Co.
129	Batavia Body Co.
503	Beaverite Products, Inc.
H-2	Bessire & Co., Inc.
B-10	Bingham & Risdon Co.
M-2	Blanke-Baer Extract & Preserving Co.
W-16	Bloomer Bros. Co.
L-16	Blumenthal Bros. Chocolate Co.
123	Bon Bon Corp.
D-2	Boonville Manufacturing Corp.
B-8	Bowey's Inc.
L-13	Boyer Bros., Inc.
W-18	Boyertown Auto Body Works
B-14	Braun Brush Co.
23	The Brewer-Titchener Corp.
L-14	Bryant Machinery Corp.
L-8	Buflovak Equipment Div. Blaw-Knox Co.
140	C. I. T. Corp.
W-14	Carbonic Dispenser, Inc.
314	Centrico, Inc.
F-4	Certified Products Co.
F-2	Cesco Container Co.
M-1	Chautauqua Products Co.
W-9	Cherry-Burrell Corp.
J-12*	Chester-Jensen Co.
M-10	Chicago Stainless Equipment Corp.
105	Chiplets, Inc.
504	Chocolate Products Co.
13	The Cincinnati Fruit & Extract Works
W-28	Clayton Manufacturing Co.
W-2	Cleaver-Brooks Co.
G-17	The Cleveland Fruit Juice Co.
134	Coldmobile Div. Union Asbestos & Rubber Co.
B-9	Confectionery-Ice Cream World
529	Consolidated Siphon Supply Co., Inc.
G-7	Container Corp. of America
W-25	Continental Can Co., Inc.
518	Continental Equipment Corp.
317	Conveyor Specialties Co.
305	Corn Products Sales Co.
412	The Creamery Package Mfg. Co.
200	Crest Foods Co.
Room A	Crown Cork and Seal Co.
D-7	Crucible Steel Co. of America
E-2	Cumberland Case Mfg.
209	Dairypak Inc.
E-7	Dairy Plant Production
K-9	Dairy Record
203	Dairy Supply and Equipment Co.
B-12	Damrow Brothers Co.
W-11	De Kalb Commercial Body Corp.
W-23	The De Laval Separator Co.
A-1	Charles Dennery Inc.
W-12	Diamond Alkali Co.
W-5	Divco Corp.
E-11	The Diversey Corp.
G-3	Dixie Cup Co.
W-35	Dodge Div. Chrysler Corp.
G-13	C. Doering & Son, Inc.
502	Dole Refrigerating Co.
138	Dominion Glass Co., Ltd.
F-3	Doughtnut Corp of America, Ice Cream Div.
17	Dow Chemical Co.
D-4	Drehmann Paving & Flooring Co.
124	E. F. Drew & Co., Inc.
506*	Drumstick, Inc.
A-5	Thomas W. Dunn Co.
H-9	Eastern Dairy Equipment Co., Inc.
W-13	Eastern Stainless Steel Corp.
A-7	Empire Biscuit Co.
F-12	C. E. Erickson Co., Inc.
M-12	Erie Crate & Mfg. Co.
L-4	Eskimo Pie Corp.
208	Ex-Cell-O Corp., Pure-Pak Div.
D-3	Extrax Co.
416	Exo-Orange Co., Inc.
128	Federal Manufacturing Co.
210*	Fibreboard Products, Inc.
523	Firestone Steel Products Co.
W-3	The Fischman Co.
539	The W. J. Fitzpatrick Co.
F-1	Fogel Refrigerator Co.
525	Food Engineering
C-12	Food Materials Corp.
A-16	Foote & Jenks, Inc.
M-5*	Ford Division of Ford Motor Co.
C-11	Fort Wayne Dairy Equipment Co.
205	Freezer Box Div. of Annapolis Yacht Yards
511	Freezing Equipment Sales, Inc.
501	Frick Co.
Stage 5	Frigidaire Div., General Motors Corp.
E-9	Frosted Fruit Products
411-B	Fulton Boiler Works, Inc.
Stage 1*	Fulton Engineering Co.
F-14	G & H Products Corp.
J-12*	General Dairy Equipment, Inc.
308	General Equipment Mfg. Co., Inc.
F-15	General Mills, Inc., Special Commodities Div.
132	GMC Truck & Coach Div., General Motors Corp.
514	The Germantown Mfg. Co.
408	Girton Mfg. Co.
D-9	The J. A. Gosselin Co. Ltd.
C-13	Grand Rapids Cabinet Co.
A-15	Green Spot, Inc.
E-3	Green Manufacturing Co.
W-1	S. Gumpert Co., Inc.
W-33	G. P. Gundlach & Co.
112	Hackney Bros. Body Co.
H-8	Arthur Harris & Co.
204	The Heil Co.
B-15	Henszey Co.
321	The Herman Body Co.
J-16	Hertel, Johnson, Eipper, Stopa & Culver
531	C. T. Hogan & Co., Inc.
J-1	Hooten Chocolate Co.
J-3	Hopwood Retinning Co., Inc.
K-5	Horner Sales Corp.
K-7	The Hubinger Co.
32	Hudson Sharp Machine Co.
414	The Hudson Manufacturing Co.
W-7*	The Hurley Co.
A-12	Ice Cream Field
A-13	Ice Cream Novelties Div. Fruit Products Corp.
202	The Ice Cream Trade Journal
H-6	Ideal Dispenser Co.
107	Illinois Baking Corp.
K-8	Illinois Creamery Supply Co.
D-5	Ingersoll-Rand Co.
A-18	International Harvester Co.
206	International Paper Co.
21	Jamison Cold Storage Door Co.

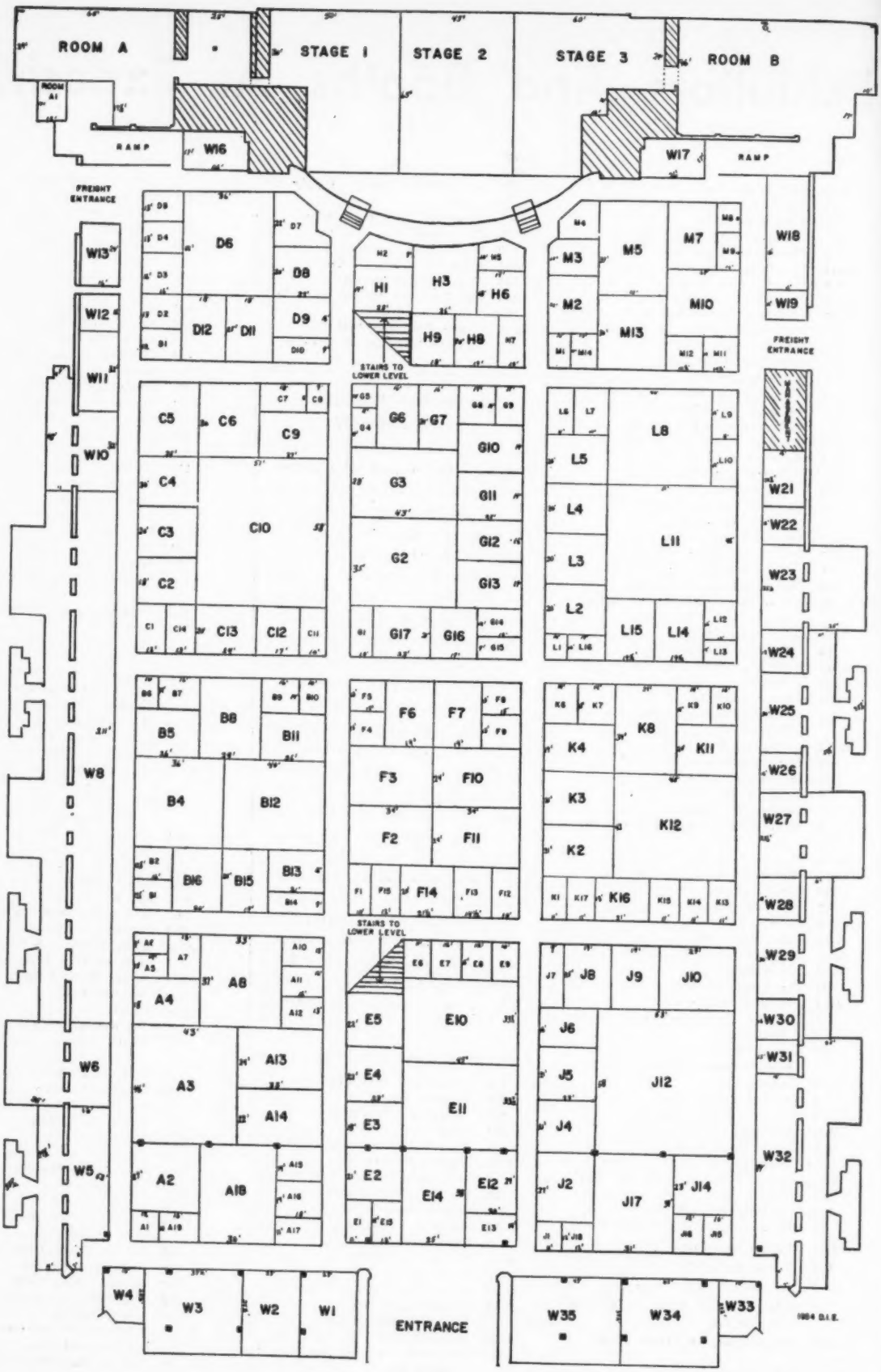
*Part of display area.

ADVERTISEMENTS GIVE SHOW PREVIEW

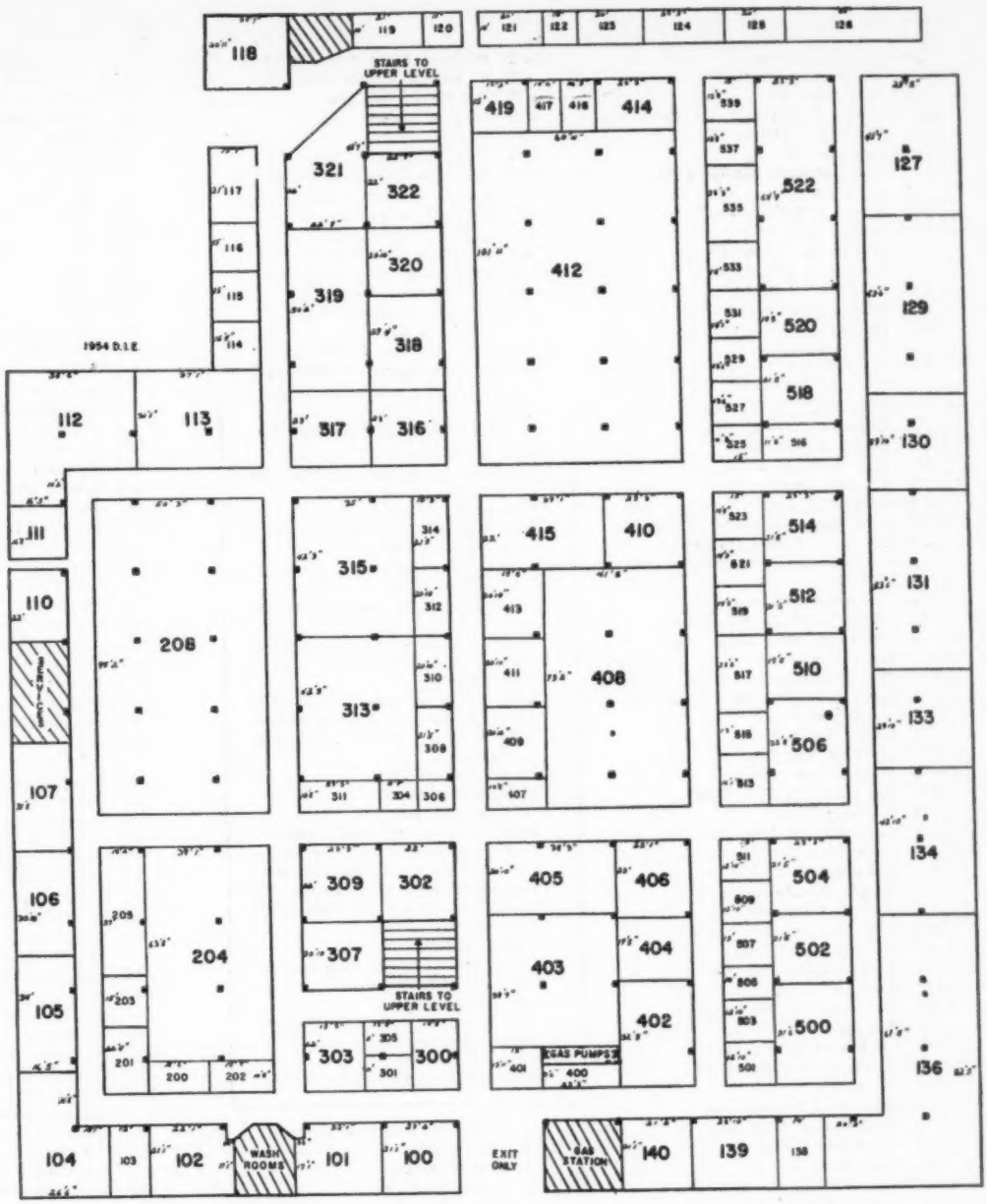
For the very best information on what to see and who to see at the Dairy Industries Exposition we recommend the advertisements of the 144 firms that appear in this issue of the *American Milk Review*. These ads will give you an excellent idea of who is showing what, booth numbers, and representatives who will be present. They constitute a highly valuable preview of the show.

In addition on page 177 you will find a list of all exhibitors at the show along with their booth numbers. On page 178 you will find the floor plan of the show. On page 181 there begins a long list of dairy supplies and equipment listed alphabetically along with *American Milk Review* advertisers who manufacture these items. Look this information over before you go to the show. It will help you get the most out of your visit.

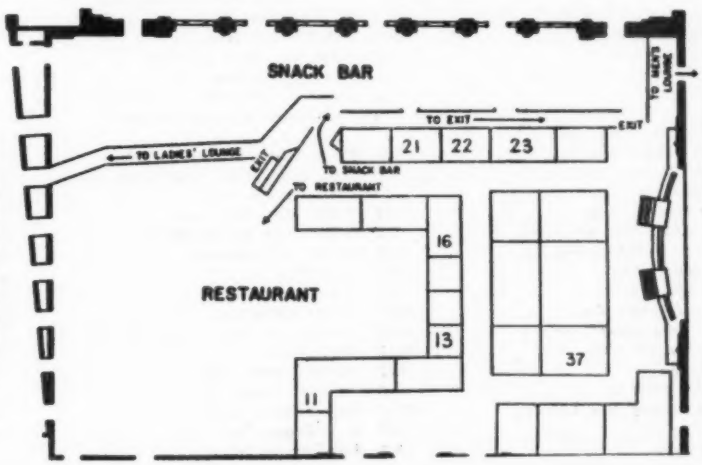
Floor Plan - Upper Level



Floor Plan — Lower Level



Floor Plan Ball Room



Booth No.	
J-4	Johnson & Johnson
W-27	Robert A. Johnston Co.
37	Jolly Gulp, Inc.
A-17	Jordan Refrigerator Co., Inc.
404	The E. A. Kaestner Co.
533	Kari-Kold Co.
D-11	Keiner-Williams Stamping Co.
L-7	Kelco Co.
306	France E. Kellogg Co.
F-9	Kendall Mills Div. of the Kendall Co.
W-7	Kennedy & Parsons Co.
104	Keystone Wagon Works, Inc.
114	Kidde Manufacturing Co., Inc.
207	Kieckhefer Container Co.
B-4*	Kimble Glass Co.
407	The King Co.
517	The King Zeero Co.
Rm. A.-1	Kisco Boiler & Engineering Co.
402	Klenzade Products, Inc.
G-14-16	Stanley Knight Corp.
311	H. Kohnstamm & Co., Inc.
318	Krim-Ko Corp.
K-1	Kurly Kate Corp.
D-12	Kusel Dairy Equipment Co.
C-9	L-W Dairy Supply Division The Langsenkamp-Wheeler Brass Works
127	The Archie Ladewig Co.
320	Ladish Co., Tri-Clover Div.
J-5	The Lamb Glass Co.
H-3*	Lanco Products Corp.
St-2	The Lathrop-Paulson Co.
F-11	LeRoy Sales Div., Burry Biscuit Corporation
L-3	Liberty Glass Co.
W-29	Lily-Tulip Cup Corp.
A-14	Limpert Bros., Inc.
G-6	The Liquid Carbonic Corp.
Room B*	Joe Lowe Corp.
A-11	C. O. Lund & Associates, Inc.
D-8	Lynch Corp.
M-9	McCormick & Co., Inc.
121	McHale Manufacturing Co.
C-7	M. & C. Conveyors, Inc.
H-1	S. H. Mahoney Extract Co.
J-8	Mallory-Randall Corp.
J-12*	Manton-Gaulin Mfg. Co.
319	Marathon Corp.
W-21	The Maryland Baking Co.
J-18	Masseys Vanilla, Inc.
316	The Master Electric Co.
J-7	Mathieson Chemical Corp.
G-1	Meese, Inc.
B-5	Metal-Glass Products Co.
307	Metal Sponge Sales Corp.
W-8	Meyer-Blanke Co.
101	Meyer Body Co., Inc.
J-17	Geo. J. Meyer Manufacturing Co.
C-4	David Michael & Co.
K-2	Mid-West Bottle Cap Co.
E-8	Milk Bottle Crate Co.
527	Milk Plant Monthly
W-7*	Miller Machinery and Supply Co.
300	Milprint, Inc.
C-2	Mission Dry Corp.
E-4	R. G. Moench & Co., Inc.
133	Mohawk Cabinet Co., Inc.
41	Mojonnier Dawson Co.
C-10	Mojonnier Bros. Co.
J-2	Monitor Process Corp.
W-7*	Monroe Food Machinery, Inc.
M-5*	Montpelier Manufacturing Co.
C-1	Morris Paper Mills
A-10	Muckle Mfg. Co.
W-17	Mulholland-Harper Co.
135	Murphy Body Works, Inc.
L-11	Nash-Kelvinator Corp.
537	Natco Corp.
W-26	National Biscuit Co.
C-1	National Folding Box Co., Inc.
G-12	National Pectin Products Co.
315	C. Nelson Manufacturing Co.
E-12	The Nestle Co., Inc.
L-10	Niagara Blower Co.
L-1	Norbon, Inc.
L-12	Norris Dispensers, Inc.
G-15	Northville Laboratories, Inc.
116	Nutting Truck and Caster Co.
522	Oakes & Burger Co.
110	Oakite Products, Inc.
L-5	The Olsen Publishing Co.
G-9	Oval Wood Dish Corp.
B-4	Owens-Illinois Glass Co.
A-8	Package Machinery Co.
506	Pangburn Co., Inc.
M-14	Parker Vanilla Products
309	Penn-Michigan Manufacturing Corp.
K-16	Pennsylvania Salt Mfg. Co.
K-12	The Pfaudler Co.
F-13	Phelps Can Co.
C-8	Phenix Foods Co.
K-17	Phenix Soda Fountain Co., Inc.
E-13	H. A. Phillips & Co.
M-8	Pick Manufacturing Co.
W-7	John Pico Dairy Supplies
J-6	C. M. Pitt & Sons Co.
K-15	Port Morris Machine & Tool Works
J-10	Portersville Stainless Equipment Corp.
301	Prince Castle Sales Division, Inc.
507	Pure Carbonic Co., Div. of Air Reduction Co., Inc.
524	Purity Mfg. Co., Inc.
C-3	Quirk Crate & Cabinet Co.
E-15	Ramsey Laboratories
F-6	Reddi-Wip
509	Reeve and Mitchell Co.
W-20	Reeves Pulley Co.
K-11	Refrigeration Engineering Co., Inc.
K-13	Rehrig-Pacific Co.
413	Republic Steel Corp.
F-8	Reynolds Metals Co.
411-A	Rogers Plastic Corp.
J-9	C. E. Rogers Co.
B-2	Roll Dippers, Inc.
E-5	Rowe Manufacturing Co.
J-15	S & S Cone Corp.
16	S. and S. Products, Inc.
E-6	Sanitary Mfg. Co. of Pittsburgh
313	Savage Arms Corp.
G-2	Schaefer, Inc.
G-8	Fred H. Schaub Engineering Co.
M-7	The Schlueter Co.
W-4	Schmidt Lithograph Co.
A-3 & 322	The Schnabel Co.
22	Edwin J. Schoettle Co.
419	Schwartz Mfg. Co.
W-32	Sealright Co., Inc.
G-5	Sediment Testing Supply Co.
410	The Sharples Corp.
G-10	J. Hungerford Smith Co.
A-9	Smith-Lee Co., Inc.
201	R. W. Snyder Co.
415	Solar-Sturges Mfg. Division
B-1	The Solvay Process Division
D-10	Southern Dairy Products Journal
K-10	Southern Packing Co., Inc.
E-1	Sparta Brush Co.
100	W. M. Sprinkman Corp.
E-10	Standard Packaging Corp.
G-4	Wm. J. Stange Co.
516	Star Kay White, Inc.
111	Stein, Hall & Co., Inc.
304	Stevens-Lee Co.
A-19	Strahman Valves, Inc.
303	Sutherland Paper Co.
H-7	Sweden Freezer Manufacturing Co.
106	Taylor Instrument Cos.
E-14	Thatcher Glass Mfg. Co., Inc.
10	Theurer Wason Works
M-13	Emery Thompson Machine & Supply Co.
401	L. C. Thomsen & Sons, Inc.
C-5	Tranter Manufacturing, Inc.
139	Triangle Package Machinery Co.
521	Union Wadding Co.
417	United Extract Labs.
505	United Milk Crate & Box Co.
119	U. S. Electrical Motors, Inc.
20	U. S. Steel Corp.
H-5	United Steel & Wire Co.
512	Universal Glass Products Co.
515	Urner-Barry Co.
302	C. J. Van Houten & Zoon, Inc.
F-7	Vanilla Laboratories, Inc.
118	The Vendo Co.
W-19	The Vilter Manufacturing Co.
122	Virginia-Carolina Chemical Corp.
535	Virginia Dare Extract Co., Inc.
Room B*	Vitafreze Equipment, Inc.
M-3	Vitex Laboratories, Division of Nopco Chemical Co.
115	Henry Vogt Machine Co.
130*	W-P Equipment Corp.
33	Walker Stainless Equipment Co.
500	Walker-Wallace, Ltd.
B-16	Warner-Jenkinson Mfg. Co.
W-6	Waukesha Foundry Co.
G-11	Weber Showcase & Fixture Co., Inc.
102	The Weiller Co.
B-6	Welch Manufacturing Co., Inc.
E-3	West Dairy Equipment Co.
A-6	Western Dairy Foods Review
D-6	The White Motor Co.
M-4	Whitson Products, Div. of The Borden Co.
513	Wilbur-Suchard Chocolate Co., Inc.
W-24	Wilson Refrigeration, Inc.
B-13	Wisner Manufacturing Corp.
409	S. J. Wolff & Co., Inc.
K-3	John Wood Co., Superior Metalware Division
L-9	Worksman Trading Corp.
125	Worthington Corp.
130*	R. G. Wright Company, Inc.
A-2	Wyandotte Chemicals Corp.
405	York Corp.
406	Yundt-Bottlematic Corp.

*Part of display area.

DAIRY WEEK HIGH LIGHTS

Thursday, October 21
National Association of Retail Ice Cream Manufacturers Annual Convention
International Association of Milk and Food Sanitarians Annual Convention

Sunday, October 24
All Industry buffet supper and concert
Dairy Industries Society International business meeting

Monday, October 25
Dairy Industries Exposition opens
Collegiate Students' Judging Contest
Milk Industry Foundation Annual Convention

Tuesday, October 26
Collegiate Night

Wednesday, October 27
Joint Session of Milk Industry Foundation and International Association of Ice Cream Manufacturers
Evaporated Milk Association meets
National Ice Cream Mix Association meets

Thursday, October 28
Special ceremonies at Exposition to honor guests from abroad

Friday, October 29
Old Timers and College Students honored at Exposition

Saturday, October 30
Dairy Industries Exposition closes

SUPPLIES AND EQUIPMENT

WHERE-TO-BUY-IT SECTION OF AMR ADVERTISERS (1953-1954)

(Please notify the Publisher of any Omissions or Corrections)

***ADHESIVES* (For Containers)**

ARABOL MFG. CO., 110 E. 42nd St., New York 17, N. Y.
H. B. FULLER, 181 W. Kellogg Blvd., St. Paul 2, Minn.

ADVERTISING AND PROMOTIONAL CAMPAIGNS

AMERICAN DAIRY ASSN., 20 N. Wacker Dr., Chicago 6, Ill.
AMERICAN DECALCOMANIA CO., 4334 W. 5th St., Chicago 24, Ill.
AMERICAN GUERNSEY CATTLE CLUB, Peterborough, N. H.
G. P. GUNDLACH CO., Box A, Cincinnati, Ohio.
INTERNATIONAL PUBLICATIONS, INC., 221 N. Lasalle St., Chicago 1, Ill.
LUTHER A. KOHR DAIRY ENTERPRISES, P. O. Box 501, York, Pa.
R. K. MERRITT & ASSOCIATES, 1100 W. 8th St., Azusa, Calif.
PAPERLYNEN CO., 555 W. Goodale St., Columbus 8, Ohio.
JOHN J. UTTERBACK & ASSOCIATES, 39 W. 55th St., New York, N. Y.

***AMMONIA* (For Refrigerating Systems)**

HENRY BOWER CHEMICAL CO., 29th St. and Gray's Ferry Rd., Philadelphia, Pa.
MATHIESON CHEMICAL CORP., Mathieson Bldg., Baltimore 3, Md.
PENNSYLVANIA SALT MFG. CO., 1000 Widener Bldg., Philadelphia 7, Pa.
SEMET SOLVAY PETROCHEMICAL DIV., ALLIED CHEMICAL & DYE CO., 40 Rector St., New York 6, N. Y.

***BAGS* (Powdered Skim Milk and Buttermilk)**

GAYLORD CONTAINER CORP., 111 N. 4th St., St. Louis 2 Mo.

BARREL LINERS AND COVERS

KALAMAZOO VEGETABLE PARCHMENT CO., Parchment, Mich.

***BASKETS* (Butter—Wire)**

BARKER EQUIPMENT CO., 1151 7th St., Keosauqua, Iowa.

BOILERS

COLUMBIA BOILER CO., Pottstown, Pa.
ERIE CITY IRON WORKS, Erie, Pa.
THE JAMES LEFFEL & CO., Springfield, Ohio.

***BOXES—BUTTER AND CHEESE* (Wood)**

CREAMERY PACKAGE MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
CUMBERLAND CASE CO., 1 Wiehl St., Chattanooga 2, Tenn.
MUCKLE MFG. CO., John St., Owatonna, Minn.

***BOXES—BUTTER AND CHEESE* (Fibre)**

GAYLORD CONTAINER CO., 111 N. 4th St., St. Louis 2, Mo.
GRANT PAPER BOX CO., 3000 Liberty Ave., Pittsburgh, Pa.

***BOXES—MILK* (House Delivery Service)**

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
CUMBERLAND CASE CO., P. O. Box 726, Chattanooga, Tenn.
MUCKLE MFG. CO., John St., Owatonna, Minn.
QUIRK MFG. CO., 3381 E. Layton Ave., Cudahy, Wisc.
P. A. RADOCY & SONS, 217 Osborn St., Rossford, Ill.
SHIRLEY MFG. CO., 3381 East Layton Ave., Cudahy, Wis.

***BRUSHES—DAIRY* (All Types)**

BRAUN BRUSH CO., 8833—78th St., Woodhaven, N. Y.
CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
CREAMERY PACKAGE MFG. CO., 1243 Washington Blvd., Chicago, Ill.
E-MAC DAIRY BRUSH CO., 3rd and Spruce St., Reading Pa.
FLOUR CITY BRUSH CO., 422 S. 4th St., Minneapolis 15, Minn.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.
OX FIBRE BRUSH CO., Frederick, Md.

BUTTER PRINTING, CUTTING, PACKAGING MACHINERY

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
CHESTER JENSEN CO., 345 Tilghman St., Chester Pa.
CHIPLETS, INC., 42 N. MOORE ST., NEW YORK 13, N. Y.
CREAMERY PACKAGE MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
C. DOERING & SONS, 1375 W. Lake St., Chicago 7, Ill.
LYNCH CORP. PACKAGE MACHINERY DIV., P. O. Box 1026, Toledo, Ohio.
MUCKLE MFG. CO., John St., Owatonna, Minn.

***CABINET LIDS* (Transparent)**

R. K. MERRITT & ASSOCIATES, 1100 W. 8th St., Azusa, Calif.

***CABINETS* (Culture)**

G. P. GUNDLACH CO., P. O. Box A, Cincinnati, Ohio.
KUSEL DAIRY EQUIPMENT CO., Watertown, Wisc.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.

***CABINETS* (For Composite Milk Samples)**

CENTRAL SUPPLY CO., 310 S. Capital Ave., Indianapolis, Ind.
DAMROW BROS. CO., 196 Western Ave., Fond Du Lac, Wisc.
THE SCHLEUTER CO., Janesville. Wisc.

***CABINETS* (Display)**

BAILEY & PERKINS 444-64 Van Dyke Ave., Utica, Mich.
BALLY CASE & COOLER CO., Bally, Pa.
BARKER EQUIPMENT CO., 1151 7th St., Keosauqua, Iowa.
CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.

DOLE REFRIGERATING CO., 5920 Pulaski St., Chicago, Ill.
QUIRK MFG. CO., 3381 E. Layton Ave., Chicago, Ill.
REFRIGERATED EQUIPMENT SALES CORP., 80 W. Broad St., Mt. Vernon, N. Y.

***CANS* (Milk, Cream, Ice Cream, Cheese)**

AMERICAN CAN CO., 100 PARK Ave., New York, N. Y.
ATLANTIC STAMPING CO., 156 Ames St., Rochester 2, N. Y.
CONTINENTAL CAN CO., 100 E. 42nd St., New York, N. Y.
CREAMERY PACKAGE MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
KEINER WILLIAMS STAMPING CO., 8746 123rd St., Richmond Hill 18, N. Y.
LILY TULIP CUP CORP., 122 E. 42nd St., New York 17, N. Y.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.
PENN-MICHIGAN MFG. CO., 2730 Scotten St., Detroit, Mich.
SEALRIGHT CO., INC., Fulton N. Y.
SOLAR STURGES MFG. CO., Melrose Park, Ill.

CAPS, HOODS, SEALS

AMERICAN SEAL KAP CORP., 11-05 44th Dr., Long Island City, N. Y.
CREAMERY PACKAGE MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
CROWN CORK & SEAL CO., Eastern Ave. and Kresson St., Baltimore 3, Md.
E-CON-O-SEAL CO., 2222 N. Olney St., Indianapolis, Ind.
KALAMAZOO VEGETABLE PARCHMENT CO., Parchment, Mich.
MID-WEST BOTTLE CAP CO., 310 Buchanan St., Belvidere, Ill.
PURE PAK DIV. EX-CELL-O CORP., Hamilton at Oakman Blvd., Detroit, Mich.
S. & S. Paper Products Co., Cudahy, Wisc.
SEALRIGHT CO., INC., Fulton, N. Y.
SMITH LEE CO., INC., 537 Fitch St., Oneida, N. Y.
STANDARD PACKAGING CORP., 122 E. 42nd St., New York 17, N. Y.

***CARRIERS* (Milk Bottle and Carton)**

BARKER EQUIPMENT CO., 1151 7th St., Keosauqua, Iowa.
CAMPBELL BOX & TAG CO., 910 S. Main St., S. Bend, Ind.
CREAMERY PACKAGE MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
HAYNES MFG. CO., 709 Woodland Ave., Cleveland, Ohio.
ILLINOIS CREAMERY SUPPLY CO., 717 S. Damen Ave., Chicago 12, Ill.
MAYFAIR PRODUCTS, P. O. Box 87, Torrance, Calif.
QUIRK MFG. CO., 3381 E. Layton Ave., Cudahy, Wisc.
UNITED STEEL & WIRE CO., 27 Fonda St., Battle Creek, Mich.

CARTONING MACHINERY

AUTOMATIC PACKAGING MACHINERY, INC., 69 W. Washington St., Chicago 2, Ill.
KIECKHEFER CONTAINER CO., Camden, N. J.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.
MOJONNIER DAWSON CO., 9151 Fullerton Ave., Franklin Park, Ill.
PURE-PAK DIV. EX-CELL-O CORP., 1200 Oakman Blvd., Detroit, Mich.
SEALRIGHT CO., INC., Fulton, N. Y.
TRIANGLE PACKAGE MACHINERY CO., 6658 W. Diversey Blvd., Chicago 35, Ill.

***CARTONS* (Butter and Cheese)**

BUTLER PAPER PRODUCTS CO., 982 Wall St., Toledo, Ohio.
CAMPBELL BOX & TAG CO., 910 S. Main St., So. Bend, Ind.
CONTINENTAL CAN CO., Ponca City, Okla.
CREAMERY PACKAGE MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
GAYLORD CONTAINER CO., 111 N. 4th St., St. Louis 2, Mo.
SEALRIGHT CO., Fulton, N. Y.

***CARTONS* (Egg)**

ROBERT GAIR CO., INC., 155 E. 44th St., New York 17, N. Y.
SELF LOCKING CARTON CO., 589 E. Illinois St., Chicago, Ill.

***CARTS* (Can)**

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
GIRTON MFG. CO., Millville, Pa.
HAYNES MFG. CO., 709 Woodland Ave., Cleveland, Ohio.
MUCKLE MFG. CO., John St., Owatonna, Minn.
NUTTING TRUCK & CASTER CO., W. Division St., Faribault, Minn.

CASEIN SOLVENTS

E. F. DREW CO., 15 E. 26th St., New York, N. Y.
SOLVAY PROCESS, DIV. ALLIED CHEMICAL & DYE CORP., 61 Broadway, New York 6, N. Y.

CASES, MILK BOTTLE

BARKER EQUIPMENT CO., 1151 Seventh St., Keosauqua, Iowa.
CREAMERY PACKAGE MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
CUMBERLAND CASE CO., 1 Wiehl St., Chattanooga, Tenn.
ILLINOIS CREAMERY SUPPLY CO., 717 S. Damen Ave., Chicago 12, Ill.
MUCKLE MFG. CO., P.O. Box 119, Owatonna, Minn.
QUIRK MFG. CO., 3381 E. Layton Ave., Chicago, Ill.
UNITED STEEL & WIRE CO., 27 Fonda St., Battle Creek, Mich.
JOHN WOOD CO., Box 187, St. Paul 3, Minn.
KEINER WILLIAMS STAMPING CO., 8746—123rd St., Richmond Hill 18, N. Y.

***CENTRIFUGES* (Babcock Test)**

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
GARVER MFG. CO., 224 N. Columbia Ave., Union City, Ind.
MOJONNIER BROS. CO., 9151 Fullerton Ave., Franklin Park, Ill.

CHEESE EQUIPMENT AND SUPPLIES

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.

DAMROW BROS. CO., 204 Western Ave., Fond Du Lac, Wisc.
KEINER WILLIAMS STAMPING CO., 8746—123rd St., Richmond Hill 18, N. Y.
KUSEL DAIRY EQUIPMENT CO., Watertown, Wisc.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.
PURITY MFG. CO., Cattaraugus, N. Y.
STOELTING BROS. CO., Kiel, Wisc.

***CHEMICALS* (For Creameries)**

CHANDLER LABORATORIES, INC., 8th and Chelten, Philadelphia, Pa.
HARRY W. DIETERT CO., 9330 Roselawn, Detroit 4, Mich.
DIVERSEY CORP., 53 W. Jackson Blvd., Chicago 4, Ill.
KLENZADE PRODUCTS CO., P.O. Box 70, Beloit, Wisc.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.
NOPCO CHEMICAL CO., Vitex Div., 211—1st St., Harrison, N. J.
PENNSYLVANIA SALT MFG. CO., 1000 Widener Bldg., Philadelphia, Pa.
SOLVAY PROCESS, Div. Allied Chemical & Dye Corp., 61 Broadway, New York 6, N. Y.

CHOCOLATE SYRUPS AND POWDERS

BOWEY'S, INC., 679 Orleans St., Chicago 10, Ill.
CHANDLER LABORATORIES, INC., 8th and Chelten, Philadelphia, Pa.
CHOCOLATE PRODUCTS CO., 415 Scott St., Chicago, Ill.
BENJ. J. FORBES CO., 2000 W. 14th St., Cleveland 13, Ohio.
GREEN SPOT, INC., 1501 W. Beverly Blvd., Los Angeles 21, Calif.
G. P. GUNDLACH & CO., P. O. Box A, Cincinnati, Ohio.
ROBT. A. JOHNSTON CO., 4023 W. National Ave., Milwaukee, Wisc.
PHENIX FOODS CO., 460 E. Illinois St., Chicago 90, Ill.

CHURNS AND WORKERS

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago, Ill.
CREAMERY PACKAGE MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
GIRTON MFG. CO., Millville, Pa.
KING ZEERO CO., 4300 W. Montrose Ave., Chicago 41, Ill.

***CIRCLES* (Cloth, Butter and Cheese)**

KALAMAZOO VEGETABLE PARCHMENT PAPER CO., Parchment, Mich.
REEVE & MITCHELL CO., 300 Spruce St., Philadelphia, Pa.

CITRUS FRUIT CONCENTRATES

BOWEYS, INC., 679 Orleans St., Chicago 10, Ill.
CHANDLER LABORATORIES, INC., 8th and Chelten, Philadelphia, Pa.
CHOCOLATE PRODUCTS CO., 415 Scott St., Chicago, Ill.
E-Z-E ORANGE CO., 223 W. Erie St., Chicago 10, Ill.
FRUIT INDUSTRIES, INC., P.O. Box 338, Bradenton, Fla.
GLACIER CO., 7113 Wooster Pike, Cincinnati 29, Ohio.
GREEN SPOT, INC., 1501 W. Beverly Blvd., Los Angeles 21, Calif.
MISSION DRY CORP., 1601 E. 16th St., Los Angeles, Calif.
McCARTHY FRUIT PRODUCTS CO., 1715 Church St., Evanston, Ill.
SUNKIST GROWERS, 707 W. 5th St., Ontario, Calif.
UNITED EXTRACT LABORATORIES, 1521 W. Walton St., Chicago 22, Ill.

CLARIFIERS

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
CREAMERY PACKAGE MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
DE LAVAL SEPARATOR CO., Poughkeepsie, N. Y.
FORT WAYNE DAIRY EQUIPMENT CO., 1600 Winter St., Ft. Wayne, Ind.
KUSEL DAIRY EQUIPMENT CO., 100 W. Milwaukee St., Watertown, Wisc.
SHARPLES CORP., 2308 Westmoreland St., Philadelphia, Pa.

CLEANERS AND CLEANSERS

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago, Ill.
CREAMERY PACKAGE MFG. CO., 1243 W. Washington Blvd., Chicago 6, Ill.
DIAMOND ALKALI CO., Oliver Bldg. Pittsburgh, Pa.
DIVERSEY CORP., 53 W. Jackson Blvd., Chicago 4, Ill.
E. F. DREW CO., 15 E. 26th St., New York 10, N. Y.
KLENZADE PRODUCTS, INC., Beloit, Wisc.
LATHROP PAULSON CO., 2459 W. 48th St., Chicago, Ill.
PENNSYLVANIA SALT MFG. CO., 1000 Widener Bldg., Philadelphia 7, Pa.
SOLVAY SALES, Div. Allied Chemical & Dye Corp., 40 Rector St., New York, N. Y.
STEELCOTE MFG. CO., 3418 Gratiot St., St. Louis 3, Mo.
WYANDOTTE CHEMICAL CORP., Wyandotte, Mich.

CLIPPING EQUIPMENT

SUNBEAM CORP., 5600 Roosevelt Rd., Chicago, Ill.

***COAGULATORS* (For Cheese)**

CHANDLER LABORATORIES, INC., 8th and Chelten, Philadelphia, Pa.

COLD STORAGE DOORS

JAMISON COLD STORAGE DOOR CO., Hagerstown, Md.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago 44, Ill.

COLD STORAGE WAREHOUSES

CENTRAL COLD STORAGE CO., 350 N. Dearborn St., Chicago 10, Ill.
PIEDMONT COLD STORAGE CO., Stonewall and Mint Sts., Charlotte, N. C.

***COLOR* (Butter and Cheese)**

GOLDEN CHURN LABORATORIES, 2307 N. 11th St., St. Louis 6, Mo.

***COMPRESSORS* (Air)**

INGERSOLL-RAND CO., Phillipsburg, N. J.
LYNCH CORP. PKG. MACH'Y DIV., Crystal and Ames Sts., Anderson, Ind.

***CONTAINERS* (Milk, Cream, Cottage and Sour Cream)**

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
LAMB GLASS CO., Mt. Vernon, Ohio.
LIBERTY GLASS CO., Sapulpa, Okla.
OWENS ILLINOIS GLASS CO., Ohio Bldg., Toledo 1, Ohio.
THATCHER GLASS MFG. CO., INC., Grand Central and Kingsbury Rd., Elmira, N. Y.

UNIVERSAL GLASS PRODUCTS CO., Sapulpa, Okla.
AMERICAN CAN CO., 100 Park Ave., New York, N. Y.
CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
CONTINENTAL CAN CO., 100 E. 42nd St., New York 17, N. Y.
GAYLORD CONTAINER CORP., 111 No. 4th St., St. Louis, Mo.
KIECKHEFER CONTAINER CO., Camden, N. J.
LILY TULIP CUP CORP., 122 E. 42nd St., New York 17, N. Y.
PURE-PAK DIV. EX-CELL-O CORP., 1200 Oakman Blvd., Detroit 32, Mich.
SEALRIGHT CO., INC., Fulton, N. Y.
SHERIDAN PRODUCTS CO., Racine, Wisc.
STANDARD PACKAGING CORP., 551—5th Ave., New York 17, N. Y.
TRIANGLE PACKAGE MACHINERY CO., 6633 W. Diversey Ave., Chicago 35, Ill.

CONTAINERS **(Promotional — Cottage Cheese, Sour Cream, Ice Cream, etc.)**

AMES-BELL CORP., 50-58 34th St., Long Island City, N. Y.
ATLANTIC STAMPING CO., 156 Ames St., Rochester 2, N. Y.
CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
G. P. GUNDLACH & CO., P.O. Box A, Cincinnati, Ohio.
GAY FAD STUDIOS, 220 Pierce Ave., Lancaster, Ohio.
MALLORY RANDALL CORP., 84 Clifton Pl., Brooklyn, N. Y.
MASSACHUSETTS PLASTIC CORP., 308 North St., Ludlow, Mass.
PEORIA PLASTIC CO., 409-B George St., Peoria, Ill.

CONVEYORS **(Bottle)**

BARKER EQUIPMENT CO., 1151 7th St., Keosauqua, Iowa.
CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
CONTINENTAL EQUIPMENT CO., 6103 N. 76th St., Milwaukee, Wisc.
CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
CROWN CORK & SEAL CO., Eastern Ave. and Kresson St., Baltimore 3, Md.
DAMROW BROS. CO., 204 Western Ave., Fond Du Lac, Wisc.
FORT WAYNE DAIRY EQUIPMENT CO., 1600 Winter St., Fort Wayne, Ind.
THE HEIL CO., 3000 W. Montana St., Milwaukee, Wisc.
GEO. J. MEYER CO., 337 Holtoff Pl., Cudahy, Wisc.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.
MOJONNIER-DAWSON CO., 9151 Fullerton Ave., Franklin Park, Ill.
STOELTING BROS. CO., 714 Paine St., Kiel, Wisc.

CONVEYOR SYSTEMS **(Can, Case Carton)**

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago, Ill.
CONTINENTAL EQUIPMENT CO., 6103 N. 76th St., Milwaukee, Wisc.
FOOD MACHINERY & CHEMICAL CORP. (Packing Equip. Div.) 3075—12th St., Riverside, Calif.
THE HEIL CO., 3000 W. Montana St., Milwaukee, Wisc.
INTERNATIONAL HARVESTER CO., INC., 180 N. Michigan Ave., Chicago, Ill.
LATHROP PAULSON CO., 2459 W. 48th St., Chicago, Ill.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.
STOELTING BROS. CO., Kiel, Wisc.

COOLERS **(Milk)**

ALLOY PRODUCTS CORP., 1041 Perkins St., Waukesha, Wisc.
CENTRAL SUPPLY CO., 310 S. Capitol Ave., Indianapolis, Ind.
CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago, Ill.
CHESTER-JENSEN CO., 345 Tilghman St., Chester, Pa.
CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
KING ZEERO CO., 1447 Montrose Ave., Chicago 13, Ill.
MASTER-BILT REFRIGERATION MFG. CO., 920 Palm St., St. Louis, Mo.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.
PFAUDLER CO., 1000 West Ave., Rochester 3, N. Y.
PURITY MFG. CO., Cattaraugus, N. Y.
S. & S. PRODUCTS, INC., P. O. Box 1047, Lima, Ohio.
STAR PUMP & COOLER CORP., 1220 N. 15th St., St. Louis 6, Mo.
WILSON REFRIGERATION CO., INC., Glenwood Ave., Smyrna, Del.
W-P EQUIPMENT CO., 2280 Niagara St., Buffalo, N. Y.

COVERS **(Cans, Bottles)**

MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.
OWENS-ILLINOIS GLASS CO., Ohio Bldg., Toledo 1, Ohio.
PENN-MICHIGAN MFG. CO., 2730 Scotten St., Detroit, Mich.

CULTURES

CHANDLER LABORATORIES, INC., 8th and Chelten, Philadelphia, Pa.
DAIRY LABORATORIES, 2300 Locust St., Philadelphia 3, Pa.

CULTURE CONTROLS

G. P. GUNDLACH & CO., P. O. Box A, Cincinnati, Ohio.
MOJONNIER BROS., 4601 W. Ohio St., Chicago, Ill.

DIPPERS **(Sampling)**

ATLANTIC STAMPING CO., 156 Ames St., Rochester, N. Y.
CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
KEINER WILLIAMS STAMPING CO., 8746—123rd St., Richmond Hill 18, N. Y.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.
PURITY MFG. CO., Cattaraugus, N. Y.
HAROLD S. SPENCER CO., Homer, N. Y.
JOHN WOOD CO., Superior Metalware Div., Box 187, St. Paul 3, Minn.

DISC WASHERS

SEDIMENT TESTING SUPPLY CO., 20 E. Jackson Blvd., Chicago, Ill.
THE SCHLUETER CO., Janesville, Wisc.

DISPENSERS

See Vending Machines.

DIVIDERS **(Test Bottle)**

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.

DOLLIES AND CASTERS

BARKER EQUIPMENT CO., 1151 7th St., Keosauqua, Iowa.
CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago, Ill.
CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago 6, Ill.
GIRTON MFG. CO., Millville, Pa.
HAYNES MFG. CO., 709 Woodland Ave., Cleveland, Ohio.
KUSEL DAIRY EQUIPMENT CO., 100 W. Milwaukee St., Watertown, Wisc.
MUCKLE MFG. CO., P. O. Box 119, Owatonna, Minn.
NUTTING TRUCK & CASTER CO., W. Division St., Faribault, Minn.
QUIRK MFG. CO., 3381 E. Layton Ave., Cudahy, Wisc.

DRY MILK SOLIDS **(Non-fat)**

AMERICAN DRY MILK INSTITUTE, 221 N. La Salle St., Chicago, Ill.

EGG NOG BASE

BOWEY'S, INC., 679 Orleans St., Chicago 10, Ill.
G. P. GUNDLACH CO., P. O. Box A, Cincinnati, Ohio.
McCARTHY FRUIT PRODUCTS CO., 1715 Church St., Evanston, Ill.

EVAPORATORS

See **Milk Drying Equipment.**

FANS AND BLOWERS

See **Ventilating Equipment.**

FARM TANKS AND EQUIPMENT

ALLOY PRODUCTS CORP., 1045 Perkins Ave., Waukesha, Wisc.
CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
DAIRY EQUIPMENT CO., 1444 E. Washington Ave., Madison, Wisc.
DE LAVAL SEPARATOR CO., Poughkeepsie, N. Y.
DAMROW BROS. CO., 204 Western Ave., Fond Du Lac, Wisc.
GIRTON MFG. CO., Millville, Pa.
THE HEIL CO., 3000 W. Montana St., Madison, Wisc.
KUSEL DAIRY EQUIPMENT CO., 100 W. Milwaukee St., Watertown, Wisc.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago 44, Ill.
PORTERSVILLE STAINLESS EQUIPMENT CO., Portersville, Pa.
PURITY MFG. CO., Cattaraugus, N. Y.
STOELTING BROS. CO., Kiel, Wisc.
WILSON REFRIGERATION, INC., Glenwood Ave., Smyrna, Del.

FILLERS AND SEALERS

AMERICAN CAN CO., 100 Park Ave., New York, N. Y.
AMERICAN SEAL KAP CORP., 11-05—44th Dr., Long Island City, N. Y.
AUTOMATIC PACKAGING EQUIPMENT, INC., 69 W. Washington St., Chicago 2, Ill.
CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
CREAMERY PACKAGE MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
CROWN CORK & SEAL, Eastern and Kresson Sts., Baltimore 3, Md.
FORT WAYNE DAIRY EQUIPMENT CO., 1600 Winter St., Fort Wayne, Ind.
GIRTON MFG. CO., Millville, Pa.
ILLINOIS CREAMERY SUPPLY CO., 717 S. Damen Ave., Chicago 12, Ill.
INDUSTRIAL METAL FABRICATORS CO., 8820 Lyndon St., Detroit 21, Mich.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago 44, Ill.
MOJONNIER-DAWSON CO., 9151 Fullerton Ave., Franklin Park, Ill.
PFAUDLER CO., 89 East Ave., Rochester 4, N. Y.
TRIANGLE PACKAGE MACHINERY CO., 6633 W. Diversey Ave., Chicago 35, Ill.

FILTERS **(Milk)**

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
DAMROW BROS. CO., 204 Western Ave., Fond Du Lac, Wisc.
ILLINOIS CREAMERY SUPPLY CO., 717 S. Damen Ave., Chicago 12, Ill.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.
REEVE & MITCHELL CO., 300 Spruce St., Philadelphia, Pa.
SANITARY MFG. CO., Marion and Locust Sts., Pittsburgh 19, Pa.
SOLAR STURGES MFG. CO., Melrose Park, Ill.
STOELTING BROS. CO., Kiel, Wisc.
L. C. THOMSEN & SONS, 1303—43rd St., Kenosha, Wisc.
TRI-CLOVER MACHINE CO., 2806—60th St., Kenosha, Wisc.
YUNDT-BOTTLEMATIC CORP., 3670 Muddy Creek Rd., Cincinnati 12, Ohio.

FILTERS AND STRAINERS **(Farm Type)**

ATLANTIC STAMPING CO., 156 Ames St., Rochester 2, N. Y.
FORT WAYNE DAIRY EQUIPMENT CO., 1600 Winter St., Fort Wayne, Ind.
G. & H. PRODUCTS CORP., 2409 W. 52nd St., Kenosha, Wisc.
KEINER-WILLIAMS STAMPING CO., 8746—123rd St., Richmond Hill 18, N. Y.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.
PENN MICHIGAN MFG. CO., 2730 Scotten St., Detroit, Mich.
REEVE & MITCHELL CO., 300 Spruce St., Philadelphia, Pa.
SANITARY MFG. CO., Marion and Locust Sts., Pittsburgh 19, Pa.
SOLAR-STURGES MFG. CO., Melrose Park, Ill.

FLOORING

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.

FOIL **(Aluminum, Tin, etc.)**

RAP-IN-WAX PAPER CO., 150—26th Ave. S. E., Minneapolis 14, Minn.

GASKETS

BEAVERITE PRODUCTS, INC., Beaver Falls, N. Y.
CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago, Ill.

CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
HAYNES MFG. CO., 709 Woodland Ave., Cleveland, Ohio.
TRI-CLOVER MACHINE CO., 2806—60th St., Kenosha, Wisc.

GAUGES

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago, Ill.
CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
ELECTRIC AUTO-LITE CO., Champlain and Mulberry Sts., Cleveland 1, Ohio.
THE FOXBORO CO., 38 Neponset St., Foxboro, Mass.
THE PFAUDLER CO., 89 East Ave., Rochester 4, N. Y.
TAYLOR INSTRUMENT CO., 95 Ames St., Rochester, N. Y.
TRIMOUNT INSTRUMENT CO., 3119 W. Lake St., Chicago 12, Ill.

HEATERS **(Electric, Tank, Unit, Water, etc.)**

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago, Ill.
CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
DAMROW BROS. CO., 204 Western Ave., Fond Du Lac, Wisc.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.
MUCKLE MFG. CO., John St., Owatonna, Minn.
THE PFAUDLER CO., 89 East Ave., Rochester 4, N. Y.
THE SCHLUETER CO., Janesville, Wisc.
STOELTING BROS. CO., Kiel, Wisc.

HOMOGENIZERS

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
MANTON-GAULIN MFG. CO., 7 Charlton St., Everett, Mass.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.

HOSE AND HOSING EQUIPMENT

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago, Ill.
CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
E-MAC DAIRY BRUSH CO., 3rd and Spruce Sts., Reading, Pa.
SPECIALIZED ENGINEERING SERVICE, P. O. Box 816, Church St. Sta., New York, N. Y.

HOT WATER SYSTEMS

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.

INSECTICIDES AND SPRAYERS

CHANDLER LABORATORIES, INC., 8th and Chelten, Philadelphia, Pa.
DIVERSEY CORP., 53 W. Jackson Blvd., Chicago 4, Ill.
GULF OIL CO., Gulf Bldg., Pittsburgh 17, Pa.
PENNSYLVANIA SALT MFG. CO., 1000 Widener Bldg., Philadelphia 7, Pa.
SUPERIOR CHEMICAL CO., 47 N. 2nd St., Philadelphia 6, Pa.

INSTRUMENTS **(Liquid Level, Pressure and Temperature Control, etc.)**

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago, Ill.
CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
ELECTRIC AUTO-LITE CO., Champlain and Mulberry Sts., Cleveland 1, Ohio.
FOXBORO CO., 38 Neponset St., Foxboro, Mass.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.
MOJONNIER-DAWSON CO., 9151 Fullerton Ave., Franklin Park, Ill.
SCIENTIFIC INSTRUMENT CO., 1041 2nd Ave., Detroit 26, Mich.
TAYLOR INSTRUMENT CO., 95 Ames St., Rochester, N. Y.

INTENSIFIERS **(Butter)**

CHANDLER LABORATORIES, INC., 8th and Chelten, Philadelphia, Pa.

JACKETS **(Shipping, Box and Can)**

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.

LABORATORIES **(Dairy and Creamery Research)**

DAIRY LABORATORIES, 2300 Locust St., Philadelphia 3, Pa.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.
PENNSYLVANIA SALT MFG. CO., 1000 Widener Bldg., Philadelphia 7, Pa.

LABORATORY SUPPLIES AND EQUIPMENT **(Dairy and Creamery)**

AUTOMATIC DAIRY EQUIPMENT CO., Prescott, Wisc.
CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago, Ill.
DAIRY LABORATORIES, 2300 Locust St., Philadelphia 3, Pa.
GARVER MFG. CO., Union City, Ind.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.
MOJONNIER-DAWSON CO., 9151 Fullerton Ave., Franklin Park, Ill.
SEDIMENT TESTING SUPPLY CO., 20 E. Jackson Blvd., Chicago, Ill.

LINERS **(Box)**

KALAMAZOO VEGETABLE PARCHMENT CO., Kalamazoo, Mich.

LIQUEFIERS **(Frozen Cream, Butter, Eggs, Fruits)**

BRYANT MACHINERY CO., 67 Van Reipen Ave., Jersey City 6, N. J.

LUBRICANTS **(For Dairy and Creamery Machinery)**

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago, Ill.
CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
E. F. DREW CO., 153 E. 26th St., New York 10, N. Y.
FAMOUS LUBRICANTS, INC., 124 W. 47th St., Chicago 8, Ill.
HAYNES MFG. CO., 709 Woodland Ave., Cleveland, Ohio.
McGLAUGHLIN OIL CO., 3750 E. Livingston Ave., Columbus 13, Ohio.
SINCLAIR REFINING CO., 630—5th Ave., New York 20, N. Y.

MASTITIS DETECTORS

DAIRY EQUIPMENT CO., 1444 E. Washington Ave., Madison, Wisc.

METALS

ALLEGHENY LUDLUM STEEL CORP., Oliver Bldg., Pittsburgh 22, Pa.

U. S. STEEL CO., 525 Wm. Penn Pl., Pittsburgh 20, Pa.

MILK DRYING, EVAPORATING AND CONDENSING MACHINERY AND EQUIPMENT

ALLOY PRODUCTS CO., 1045 Perkins Ave., Waukesha, Wisc.

BUFLOVAK EQUIP. (Div. Blaw-Knox Co.) 1627 Fillmore Ave., Buffalo, N. Y.

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.

FORT WAYNE DAIRY EQUIPMENT CO., 1600 Winter St., Ft. Wayne, Ind.

HENSZEY CO., Watertown, Wisc.

L/W DAIRY SUPPLY CO., 229 E. South St., Indianapolis, Ind.

MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.

OVERTON MACHINE CO., Dowagiac, Mich.

THE PFAUDLER CO., 89 East Ave., Rochester 4, N. Y.

MILKING MACHINES AND EQUIPMENT

DE LAVAL SEPARATOR CO., Poughkeepsie, N. Y.

INTERNATIONAL HARVESTER CO., 180 N. Michigan Ave., Chicago, Ill.

***MOULDS* (Butter)**

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.

CHESTER-JENSEN CO., 5th and Tilghman Sts., Chester, Pa.

CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.

NEUTRALIZERS

CHANDLER LABORATORIES, INC., 8th and Chelten, Philadelphia, Pa.

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago, Ill.

DAIRY LABORATORIES, 2300 Locust St., Philadelphia 3, Pa.

DIAMOND ALKALI CO., Oliver Bldg., Pittsburgh, Pa.

DIVERSEY CORP., 53 W. Jackson Blvd., Chicago 4, Ill.

SOLVAY SALES (Div. Allied Chemical & Dye Corp.) 40 Rector St., New York, N. Y.

ORANGE DRINK CONCENTRATE

See Citrus Fruit Concentrate.

PACKAGING MACHINERY

ATLANTIC STAMPING CO., 156 Ames St., Rochester 2, N. Y.

CHIPLETS, INC., 42 No. Moore St., New York 13, N. Y.

C. DOERING & SONS, INC., 1375 W. Lake St., Chicago, Ill.

LYNCH CORP. (Pkg. Mach'y Div.) P. O. Box 1026, Toledo, Ohio.

STANDARD PACKAGING CORP., 122 E. 42nd St., New York 17, N. Y.

TRIANGLE PACKAGE MACHINERY CO., 6658 W. Diversey Blvd., Chicago 35, Ill.

***PAILS* (Dairy)**

ATLANTIC STAMPING CO., 156 Ames St., Rochester 2, N. Y.

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago, Ill.

CREAMERY PACKAGE MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.

DAMROW BROS. CO., 204 Western Ave., Fond Du Lac, Wisc.

KEINER WILLIAMS STAMPING CO., 8746—123rd St., Richmond Hill 18, N. Y.

KUSEL DAIRY EQUIPMENT CO., Watertown, Wisc.

PENN-MICHIGAN MFG. CO., 2730 Scotten Ave., Detroit, Mich.

THE SCHLEUTER CO., Janesville, Wisc.

SOLAR STURGES MFG. CO., Melrose Park, Ill.

STOELTING BROTHERS CO., Kiel, Wisc.

JOHN WOOD CO., Superior Metalware Div., 509 Front Ave., St. Paul 3, Minn.

PAINTS

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.

CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.

STEELCOTE MFG. CO., 3428 Gratiot St., St. Louis, Mo.

TROPICAL PAINT & OIL CO., 1172 W. 70th St., Cleveland 2, Ohio.

PARCHMENT PAPER

KALAMAZOO VEGETABLE PARCHMENT CO., Kalamazoo, Mich.

PASTEURIZERS

ALLOY PRODUCTS CORP., 1045 Perkins Ave., Waukesha, Wisc.

BUFLOVAK EQUIP., Div. Blaw-Knox Co., 1627 Fillmore Ave.,

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago, Ill.

CHESTER-JENSEN CO., 5th and Tilghman Sts., Chester, Pa.

CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.

DAMROW BROS. CO., 204 Western Ave., Fond Du Lac, Wisc.

FORT WAYNE DAIRY EQUIPMENT CO., 1600 Winter St., Fort Wayne, Ind.

GIRTON MFG. CO., Millville, Pa.

G. P. GUNDLACH & CO., Box A, Cincinnati, Ohio.

ILLINOIS CREAMERY SUPPLY CO., 119 S. Damen Ave., Chicago 12, Ill.

KUSEL DAIRY EQUIPMENT CO., Watertown, Wisc.

MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.

THE PFAUDLER CO., 89 East Ave., Rochester 4, N. Y.

PURE-PAK, Div. Ex-Cell-O Corp., 1200 Oakman Blvd., Detroit, Mich.

PURITY MFG. CO., Cattaraugus, N. Y.

STOELTING BROS. CO., Kiel, Wisc.

W-P EQUIPMENT CO., 2280 Niagara St., Buffalo, N. Y.

***PIPE* (Glass)**

CORNING GLASS WORKS, Corning, N. Y.

PIPE AND TUBING

ALLEGHENY LUDLUM STEEL CO., Oliver Bldg., Pittsburgh 22, Pa.

ALLOY PRODUCTS CORP., 1045 Perkins, Waukesha, Wisc.

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago, Ill.

CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.

DAMROW BROS. CO., 204 Western Ave., Fond Du Lac, Wisc.

L. C. THOMSEN CO., 1303—43rd St., Kenosha, Wisc.

TRI CLOVER MACHINE CO., 2806—60th St., Kenosha, Wisc.

PIPE AND TUBE CLEANERS

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago, Ill.
DAMROW BROS. CO., 204 Western Ave., Fond Du Lac, Wisc.
GIRTON MFG. CO., Millville, Pa.
KLENZADE PRODUCTS, INC., P. O. Box 70, Beloit, Wisc.
SCHLUETER CO., Janesville, Wisc.

***PUMPS* (All Types)**

BUFLOVAK EQUIP. Div. Blaw-Knox Co., 1627 Fillmore Ave., Buffalo 11, N. Y.
CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago, Ill.
CHESTER-JENSEN CO., 5th and Tilghman Sts., Chester, Pa.
CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
GIRTON MFG. CO., Millville, Pa.
G. & H. PRODUCTS CO., 2409 W. 52nd St., Kenosha, Wisc.
THE HEIL CO., 3000 Montana Ave., Milwaukee 7, Wisc.
INGERSOLL-RAND CO., Phillipsburg, N. J.
L/W SUPPLY CO., 1266 Shelby St., Indianapolis, Ind.
MANTON GAULIN MFG. CO., 7 Charlton St., Everett, Mass.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.
PORTERSVILLE STAINLESS EQUIPMENT CO., Portersville, Pa.
SCHLEUTER CO., Janesville, Pa.
STAR PUMP & COOLER CO., 1220 N. 15th St., St. Louis 6, Mo.
L. C. THOMSEN & SONS, 1303—43rd St., Kenosha, Wisc.
TRI-CLOVER MACHINE CO., 2806—60th St., Kenosha, Wisc.
VIKING PUMP CO., Cedar Falls, Iowa.
WAUKESHA FOUNDRY CO., Lincoln Ave., Waukesha, Wisc.
W-P EQUIPMENT CO., 2280 Niagara St., Buffalo, N. Y.

***RACKS* (Butter Tray)**

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
MUCKLE MFG. CO., John St., Owatonna, Minn.
THE SCHLUETER CO., Janesville, Wisc.

REFRIGERATING MACHINERY

COL-FLAKE CORP., 2450 S. Ashland Ave., Chicago 8, Ill.
CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
DOLE REFRIGERATING CO., 5920 N. Pulaski St., Chicago, Ill.
FOSTER-BILT BUNKERS, INC., 757 W. Polk St., Chicago 7, Ill.
INGERSOLL-RAND CO., Phillipsburg, N. J.
JAMISON COLD STORAGE DOOR CO., Hagerstown, Md.
KENT INDUSTRIES, 2210 S. Michigan Ave., Chicago 16, Ill.
KING ZEERO CO., 1447 Montrose Ave., Chicago 13, Ill.
L/W SUPPLY CO., 1266 Shelby St., Indianapolis, Ind.
LYNCH CORP., Pkg. Mach'y Div., P. O. Box 1026, Toledo, Ohio.
SCHNABEL CO., S. 10th and Muriel Sts., Pittsburgh, Pa.
L. C. THOMSEN & SONS, 1303—43rd St., Kenosha, Wisc.
TRI-CLOVER MACHINE CO., 2806—60th St., Kenosha, Wisc.
WILSON REFRIGERATION, INC., Glenwood Ave., Smyrna, Del.

***REFRIGERATION* (For Trucks)**

AIR INDUCTION CORP., 122 W. 30th St., New York, N. Y.
DOLE REFRIGERATING CO., 5920 N. Pulaski St., Chicago, Ill.
FOSTER-BILT BUNKERS, INC., 757 W. Polk St., Chicago 7, Ill.
HACKNEY BROS. BODY CO., Wilson, N. C.
JOHN R. HOLLINGSWORTH CORP., Clifton Heights, Pa.
KOLD-HOLD, Div. Tranter Mfg. Co., 735 E. Hazel St., Lansing 4, Mich.
MURPHY BODY WORKS, INC., Box 771, Wilson, N. C.
SCHNABEL CO., So. 10th St., Pittsburgh, Pa.
THEURER WAGON WORKS, INC., 601 W. 56th St., New York, N. Y.
WILSON REFRIGERATION, INC., Glenwood Ave., Smyrna, Del.

RENNET AND RENNET TESTS

MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.

RETINNING SERVICES

DAMROW BROS. CO., 204 Western Ave., Fond Du Lac, Wisc.
ILLINOIS CREAMERY SUPPLY CO., 719 S. Damen Ave., Chicago 12, Ill.
L/W DAIRY SUPPLY CO., 1266 Shelby St., Indianapolis, Ind.
PURITY MFG. CO., Cattaraugus, N. Y.
STOELTING BROS. CO., Kiel, Wisc.
U-KIN-TIN PRODUCTS & ENGINEERING CO., 3109—14th Ave., Kenosha, Wisc.
UNITED PLATERS, INC., 3456 Denton St., Detroit 11, Mich.

RUBBER WEARING APPAREL

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago, Ill.
CREAMERY PKG. MFG. CO., 1243 N. Washington Blvd., Chicago, Ill.
E-MAC DAIRY BRUSH CO., 3rd and Spruce Sts., Reading, Pa.

***SALT* (Butter and Cheese)**

PENNSYLVANIA SALT MFG. CO., 1000 Widener Bldg., Philadelphia 7, Pa.

SAMPLING EQUIPMENT AND SUPPLIES

ATLANTIC STAMPING CO., 156 Ames St., Rochester 2, N. Y.
BARKER EQUIPMENT CO., Keosauqua, Iowa.
DAMROW BROS. CO., 204 Western Ave., Fond Du Lac, Wisc.
KUSEL DAIRY EQUIPMENT CO., Watertown, Wisc.
L/W DAIRY SUPPLY CO., 1266 Shelby St., Indianapolis, Ind.
LATHROP-PAULSON CO., 2459 W. 48th St., Chicago, Ill.
MUCKLE MFG. CO., John St., Owatonna, Minn.
SCHLEUTER CO., Janesville, Wisc.
STOELTING BROS. CO., Kiel, Wisc.

SANITARY FITTINGS

ALLOY PRODUCTS CORP., 1045 Perkins Ave., Waukesha, Wisc.
BEAVERITE PRODUCTS, INC., Beaver Falls, N. Y.
CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.

CREAMERY PKG. CO., 1243 N. Washington Blvd., Chicago, Ill.
G. & H. PRODUCTS CORP., 2409 W. 52nd St., Kenosha, Wisc.
PORTERSVILLE STAINLESS EQUIPMENT CO., Portersville, Pa.
L. C. THOMSEN & SONS, 1303—43rd St., Kenosha, Wisc.
TRI-CLOVER MACHINE CO., 2806—60th St., Kenosha, Wisc.
WAUKESHA FOUNDRY CO., Lincoln Ave., Waukesha, Wisc.
WISNER MFG. CO., 122 Hudson St., New York 13, N. Y.

SCALES

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
R. K. MERRITT & ASSOCIATES, 40 S. Los Robles Ave., Pasadena, Calif.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.
TOLEDO SCALE CO., 1017 Telegraph Rd., Toledo 12, Ohio.

SEDIMENT TESTING EQUIPMENT

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
L/W DAIRY SUPPLY CO., 1266 Shelby St., Indianapolis, Ind.
LATHROP PAULSON CO., 2459 W. 48th St., Chicago, Ill.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.
REEVE & MITCHELL CO., 300 Spruce St., Philadelphia, Pa.
SEDIMENT TESTING SUPPLY CO., 20 E. Jackson Blvd., Chicago, Ill.
STOELTING BROS. CO., Kiel, Wisc.
JOHN WOOD CO., 509 Front Ave., St. Paul 3, Minn.

SEPARATORS

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago, Ill.
DE LAVAL SEPARATOR CO., Poughkeepsie, N. Y.
INTERNATIONAL HARVESTER CO., INC., 180 N. Michigan Ave., Chicago, Ill.
KUSEL DAIRY EQUIPMENT CO., Watertown, Wisc.
THE SHARPLES CO., 2300 Westmoreland St., Philadelphia 40, Pa.

***SPONGES* (Metal)**

CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
E-MAC DAIRY BRUSH CO., 3rd and Spruce Sts., Reading, Pa.
KLEENETTE MFG. CO., 1269 W. North Ave., Chicago 22, Ill.
KURLY KATE CORP., 2215 W. Michigan Ave., Chicago 16, Ill.

STABILIZERS AND BINDERS

BOWEY'S, INC., 401 W. Superior St., Chicago 10, Ill.
CHANDLER LABORATORIES, INC., 17th and Glenwood Ave., Philadelphia, Pa.
CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago, Ill.
CHOCOLATE PRODUCTS CO., 415 W. Scott St., Chicago 10, Ill.
CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
E. F. DREW CO., 15 E. 26th St., New York 10, N. Y.
BENJ. P. FORBES CO., 2000 W. 14th St., Cleveland 13, Ohio.

***STACKERS* (Cases)**

FOOD MACHINERY & CHEMICAL CORP., Packing Equipment Div., 3075 12th St., Riverside, Calif.

STAINLESS STEEL LINED EQUIPMENT

ALLOY PRODUCTS CORP., 1045 Perkins Ave., Waukesha, Wisc.
CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
McLOUTH STEEL CORP., 300 S. Livernois, Detroit, Mich.
PFAUDLER CO., 89 East Ave., Rochester 4, N. Y.
PORTERSVILLE STAINLESS EQUIPMENT CO., Portersville, Pa.

STEEL

See Metals

STERILIZING EQUIPMENT

CHESTER JENSEN CO., 5th and Tilghman Sts., Chester, Pa.
CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
DAMROW BROS. CO., 204 Western Ave., Fond Du Lac, Wisc.
FORT WAYNE DAIRY EQUIPMENT CO., 1600 Winter St., Fort Wayne, Ind.
GIRTON MFG. CO., Millville, Pa.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.
PURITY MFG. CO., Cattaraugus, N. Y.
THE SCHLEUTER CO., Janesville, Ohio.
STOELTING BROS. CO., Kiel, Wisc.
WISNER MFG. CO., 122 Hudson St., New York 13, N. Y.

STERILIZING MATERIALS

CHANDLER LABORATORIES, 8th and Chelten, Philadelphia, Pa.
DIVERSEY CORP., 53 W. Jackson Blvd., Chicago 4, Ill.
MATHIESEN ALKALI CORP., Mathiesen Bldg., Baltimore 3, Md.
SOLVAY SALES, Div. Allied Chemical & Dye Corp., 40 Rector St., New York, N. Y.

STOKERS

ERIE CITY IRON WORKS, Erie, Pa.
THE JAMES LEFFEL & CO., Springfield, Ohio.

TAGS

CAMPBELL BOX & TAG CO., 910 S. Main St., So. Bend, Ind.

TANKS, HOLDING

ALLOY PRODUCTS CORP., 1045 Perkins Ave., Waukesha, Wisc.
CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
CHESTER-JENSEN CO., 345 Tilghman St., Chester, Pa.
CREAMERY PACKAGE MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
DAMROW BROTHERS CO., 204 Western Ave., Fond Du Lac, Wisc.
FOOD MACHINERY & CHEMICAL CORP., 3075 12th St., Riverside, Calif.
THE HEIL CO., 3000 Montana St., Madison, Wisc.
ILLINOIS CREAMERY SUPPLY CO., 717 S. Damen Ave., Chicago 12, Ill.
KUSEL DAIRY EQUIPMENT CO., 100 W. Milwaukee St., Watertown, Wisc.
PFAUDLER CO., 1000 West Ave., Rochester 2, N. Y.
PORTERSVILLE STAINLESS EQUIPMENT CO., Portersville, Pa.

PURITY MFG. CO., Cattaraugus, N. Y.
STOELTING BROS. CO., Kiel, Wisc.

***TANK TRUCKS* (Milk and Cream)**

ALLOY PRODUCTS CORP., 1045 Perkins Ave., Waukesha, Wisc.
CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
DAMROW BROS. CO., 204 Western Ave., Fond Du Lac, Wisc.
THE HEIL CO., 3000 Montana Ave., Milwaukee 7, Wisc.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.
PFAUDLER CO., 89 East Ave., Rochester 4, N. Y.
PORTERSVILLE STAINLESS EQUIPMENT CO., Portersville, Pa.
STANDARD STEEL WORKS, 16th and Howell Sts., N. Kansas City, Mo.
STOELTING BROS. CO., Kiel, Wisc.
WALKER STAINLESS EQUIPMENT CO., New Lisbon, Wisc.
WHITE MOTOR CO., 842 E. 79th St., Cleveland, Ohio.

TESTING APPARATUS AND EQUIPMENT

AUTOMATIC DAIRY EQUIPMENT CO., Prescott, Wisc.
CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
DAIRY LABORATORIES, 2300 Locust St., Philadelphia 3, Pa.
THE FOXBORO CO., 38 Neponset St., Foxboro, Mass.
GARVER MFG. CO., Union City, Ind.
LATHROP-PAULSON CO., 2459 W. 48th St., Chicago, Ill.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.
SEDIMENT TESTING SUPPLY CO., 20 E. Jackson Blvd., Chicago, Ill.
SOLAR-STURGES MFG. CO., Melrose Park, Ill.
SOLVAY SALES, Div. Allied Chemical & Dye Corp., 40 Rector St., New York, N. Y.

TIMERS

DURAKOOL, INC., Elkhart, Ind.

***TOOLS* (Dairy Plant Equipment)**

U-KIN-TIN PRODUCTS & ENG. CO., 3109—14th Ave., Kenosha, Wisc.

***TOTERS* (Cartons)**

MAYFAIR PRODUCTS, P. O. Box 87, Torrance, Calif.

TRAILERS

FRUEHAUF TRAILER CO., 10941 Harper Ave., Detroit, Mich.
PORTERSVILLE STAINLESS EQUIPMENT CO., Portersville, Pa.

TRAYS

MUCKLE MFG. CO., John St., Owatonna, Minn.

TRUCK BODIES

CHEVROLET MOTOR CORP., GMC Bldg., Detroit 2, Mich.
DE KALB COMMERCIAL BODY CO., 229 Garden St., De Kalb, Ill.
DIVCO CORP., P O. Box 3807, Park Grove Sta., Detroit 5, Mich.
FORD MOTOR CO., Plymouth and Middle Belt Rd., Detroit, Mich.
HACKNEY BROS. BODY CO., Wilson, N. C.
THE HEIL CO., 3000 Montana Ave., Milwaukee 7, Wisc.
MURPHY BODY WORKS, INC., Box 771, Wilson, N. C.
J. B. E. OLSON CORP., 1740 Broadway, New York 19, N. Y.
QUIRK MFG. CO., 3381 E. Layton Ave., Cudahy, Wisc.
SCHNABEL CO., So. 10th St., Pittsburgh, Pa.
WHITE MOTOR CO., 842 E. 79th St., Cleveland, Ohio.

***TRUCKS* (Floor, etc.)**

BARKER EQUIPMENT CO., Keosauqua, Iowa.
CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago, Ill.
CREAMERY PACKAGE MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
DAMROW BROS. CO., 204 Western Ave., Fond Du Lac, Wisc.
GIRTON MFG. CO., Millville, Pa.
L/W DAIRY SUPPLY CO., 1266 Shelby St., Inadiapolis, Ind.
KUSEL DAIRY EQUIPMENT CO., Watertown, Wisc.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.
MUCKLE MFG. CO., John St., Owatonna, Minn.
NUTTING TRUCK & CASTER CO., W. Division St., Faribault, Minn.

***TRUCKS* (Milk Delivery)**

CHEVROLET MOTOR CORP., G.M.C. General Motors Bldg., Detroit 2, Mich.
DE KALB COMMERCIAL BODY CO., 229 Garden St., De Kalb, Ill.
DIVCO CORP., P. O. Box 3807, Park Grove Sta., Detroit 5, Mich.
FORD MOTOR CO., Plymouth and Middle Belt Rd., Detroit, Mich.
FRUEHAUF TRAILER CO., 10941 Harper Ave., Detroit, Mich.
HACKNEY BROS. BODY CO., Wilson, N. C.
INTERNATIONAL HARVESTER CO., 180 N. Michigan Ave., Chicago, Ill.
MURPHY BODY CO., Box 771, Wilson, N. C.
J. B. E. OLSON CO., 1740 Broadway, New York, N. Y.
SCHNABEL CO., So. 10th & Muriel Sts., Pittsburgh, Pa.
STANDARD STEEL WORKS, 16th and Howell Sts., N. Kansas City, Mo.
WHITE MOTOR CO., 842 E. 79th St., Cleveland, Ohio.

VALVES

ALLOY PRODUCTS CORP., 1045 Perkins Ave., Waukesha, Wisc.
CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago, Ill.
CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
FOXBORO CO., Foxboro, Mass.
G. & H. PRODUCTS CO., 2409 W. 52nd St., Kenosha, Wisc.
KING ZEERO CO., 1447 Montrose Ave., Chicago 13, Ill.
KUSEL DAIRY EQUIPMENT CO., Watertown, Wisc.
PURITY MFG. CO., Cattaraugus, N. Y.
SPECIALIZED ENGINEERING SERVICE, P. O. Box 816, Church St. Sta., New York, N. Y.
STOELTING BROS. CO., Kiel, Wisc.
L. C. THOMSEN CO., 1303 43rd St., Kenosha, Wisc.
TRI-CLOVER MACHINE CO., 2806—60th St., Kenosha, Wisc.

***VATS* (Milk, Cream, Cheese)**

ALLOY PRODUCTS CORP., 1045 Perkins Ave., Waukesha, Wisc.
CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.

CHESTER-JENSEN CO., 5th and Tilghman Sts., Chester, Pa.
CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
DAMROW BROS. CO., 204 Western Ave., Fond Du Lac, Wisc.
KUSEL DAIRY EQUIPMENT CO., Watertown, Wisc.
PFAUDLER CO., 89 East Ave., Rochester 4, N. Y.
THE SCHLUETER CO., Janesville, Wisc.
STOELTING BROS. CO., Kiel, Wisc.
U. S. STEEL CO., 525 William Penn Pl., Pittsburgh 30, Pa.
W-P EQUIPMENT CO., 2280 Niagara St., Buffalo, N. Y.

***VENDING MACHINES* (Milk)**

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago, Ill.
F. B. DICKINSON & CO., U. P. Sta., Des Moines 11, Iowa.
IDEAL DISPENSER CO., 509 S. McClum Ave., Bloomington, Ill.
MONITOR PROCESS CORP., 192 Bright St., Jersey City, N. J.
NORRIS DISPENSERS, INC., 2720 Lyndale Ave., Minneapolis 8, Minn.
ROWE MFG. CO., 31 E. 17th St., New York, N. Y.
SHANNER EQUIPMENT CO., 4th and Plainfield Rd., La Grange, Ill.
SUNROC REFRIGERATOR CO., Glen Riddle, Pa.
VENDO COMPANY, 7400 E. 12th St., Kansas City 3, Mo.
JOHN WOOD CO., 509 Front Ave., St. Paul 3, Minn.

VENTILATORS AND VENTILATING EQUIPMENT

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
DAMROW BROS. CO., 204 Western Ave., Fond Du Lac, Wisc.
MUCKLE MFG. CO., John St., Owatonna, Minn.
STOELTING BROS. CO., Kiel, Wisc.

VITAMINS

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago, Ill.
CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
E. F. DREW CO., 15 E. 26th St., New York 10, N. Y.
GENERAL MILLS, INC., Spec. Com. Div., 80 Broad St., New York 4, N. Y.
NOPCO CHEMICAL CO., Vitex Div., 211—1st St., Harrison, N. J.

***WASHERS* (Bottle, Can and Case)**

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
CREAMERY PACKAGE MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
CHESTER-JENSEN CO., 345 Tilghman St., Chester, Pa.
DAMROW BROS. CO., 204 Western Ave., Fond Du Lac, Wisc.
GIRTON MFG. CO., Millville, Pa.
THE HEIL CO., 3000 W. Montana St., Milwaukee, Wisc.
KENDALL LaMAR CORP., 2 Raymond St., Potsdam, N. Y.
KUSEL DAIRY EQUIPMENT CO., Watertown, Wisc.
LATHROP PAULSON CO., 2459 W. 48th St., Chicago, Ill.
GEORGE J. MEYER CO., 337 Holtoff Pl., Cudahy, Wisc.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.
MOJONNIER-DAWSON CO., 9151 Fullerton Ave., Franklin Park, Ill.
THE SCHLEUTER CO., Janesville, Wisc.
STOELTING BROS. CO., Kiel, Wisc.
W-P EQUIPMENT CO., 2280 Niagara St., Buffalo, N. Y.
YUNDT-BOTTLEMATIC CORP., 3670 Muddy Creek Rd., Cincinnati 38, Ohio.

WATER COOLERS

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
CHESTER-JENSEN CO., 5th and Tilghman Sts., Chester, Pa.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.
KING ZEERO CO., 1447 Montrose Ave., Chicago 13, Ill.

***WAX* (Dairy)**

ARABOL MFG. CO., 110 E. 42nd St., New York 17, N. Y.
BARECO OIL CO., P. O. Box 2009, Tulsa, Okla.
CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
CONTINENTAL OIL CO., Ponca City, Okla.
GULF OIL CORP., Gulf Bldg., Pittsburgh 17, Pa.
PENOLA OIL CO., 3870 Penobscot Bldg., Detroit 26, Mich.
SINCLAIR REFINING CO., 630—5th Ave., New York 20, N. Y.
SUN OIL CO., 1608 Walnut St., Philadelphia, Pa.

WEIGHING AND RECEIVING OUTFITS

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago 6, Ill.
CHESTER-JENSEN CO., 5th and Tilghman Sts., Chester, Pa.
CREAMERY PKG. MFG. CO., 1243 W. Washington Blvd., Chicago, Ill.
DAMROW BROS. CO., 204 Western Ave., Fond Du Lac, Wisc.
GIRTON MFG. CO., Millville, Pa.
KUSEL DAIRY EQUIPMENT CO., Watertown, Wisc.
LATHROP-PAULSON CO., 2459 W. 48th St., Chicago, Ill.
MOJONNIER BROS. CO., 4601 W. Ohio St., Chicago, Ill.
PURITY MFG. CO., Cattaraugus, N. Y.
STOELTING BROS. CO., Kiel, Wisc.
TOLEDO SCALE CO., 1017 Telegraph Rd., Toledo 12, Ohio.

WIRE

CHICAGO STEEL & WIRE CO., 103rd and Torrance Aves., Chicago 17, Ill.
ENTERPRISE WIRE CO., 13157 Gregory St., Blue Island, Ill.
MID-STATES STEEL & WIRE CO., Crawfordsville, Ind.
NATIONAL STANDARD CO., Niles, Mich.
SENECA WIRE MFG. CO., Fostoria, Ohio.
UNITED STEEL & WIRE CO., Battle Creek, Mich.
WILSON STEEL & WIRE CO., 49th St. and S. Western Ave., Chicago 9, Ill.

***WRAPPERS* (For Cheese)**

CHERRY-BURRELL CORP., 427 W. Randolph St., Chicago, Ill.
KALAMAZOO VEGETABLE PARCHMENT CO., Kalamazoo, Mich.
RAP-IN-WAX PAPER CO., 150—26th Ave. S. E., Minneapolis 14, Minn.

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